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TUMORS OF THE BLADDER.*

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With relatively few exceptions bladder tumore are of epithelial origin. They may be divided for clinical purposes into three classes: the papillomata or those projecting into the bladder, sessile tumors or those with a broad base spreading laterally along the mucosa, and infiltrating growths which penetrate the bladder wall and often invade the prevesical tissues. Pathologically, the papillomata are of a relatively mild degree of malignancy; in fact, most of them begin as benign tumors gradually becoming malignant if neglected. The infiltrating growths are the most malignant type, while the sessile growths are intermediate in malignancy so far as can be determined by their clinical behavior. Clinically, the malignancy or the danger to life of these growths depends largely upon the stage at which they are diagnosed and treated. Fortunately most of them are of papillomatous nature of which 90 per cent are benign in their incipiency and consequently respond promptly and favorably to treatment. The malignant papillomatous tumors grow from a small base and do not extend below the mucous membrane until far advanced; they also respond satisfactorily to early treatment. The sessile and in 'ltrating growths, while more resistant to treatment, are by no means hopeless if seen early.

The symptoms of bladder tumors are usually those of cystitis plus hematuria or hematuria alone. Bleeding occurs in about 75 per cent of bladder tumors; it varies greatly in amount and is usually intermittent. Often several weeks or months may intervene between attacks of bleeding. One of my patients had a slight attack of bleeding two years before he came to me for diagnosis. At that time he was given some medicine and the bleeding ceased and only appeared again about a month before I saw him. Blood in the urine is a danger signal that should never be passed over with palliative treatment. Internal medication rarely has any beneficial effect on the cause. In every instance treatment should await a positive diagnosis of the source and cause of the bleeding; usually a cystoscopic examination is indicated.

The usual signs of cystitis, including frequency of urination, pain and pus in the urine, may occur singly or all together as a result of infiltration of the bladder wall, decrease in the bladder capacity or secondary infection. Tumors arising in the region of the trigone or near the bladder orifice cause these symptoms quite early. In summary, we may say that an early investigation of the symptoms of cystitis or blood in the urine will result in an early diagnosis of bladder tumors and consequently increase the chance of cure. Such late symptoms of the passage of tumor fragments, retention of urine, anemia, and loss of weight are signs of neglect which should not be necessary to direct our attention to the nature of the patient's complaint.

The diagnosis of bladder tumors is made chiefly by the cystoscope. The symptoms as previously mentioned are similar to those of the varying types and degrees of cystitis. Hematuria is a cardinal symptom but may result from a number of other lesions. It must follow that the physician who insists upon a cystoscopic examination in all cases of cystitis or hematuria will discover bladder tumors in a curable stage. The majority of tumors are seen between the ages of forty and sixty years. The probability of malignancy increases with the age of the patient; it therefore follows that symptoms of bladder disease are of graver significance as age advances. Examination of the urine is important; microscopic blood has the same significance as frank hematuria. Occasionally tumor fragments are found in the urine. They usually occur in late stages of the disease and are often so necrotic that very

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little can be determined by studying them. Infiltrating growths of the bladder base when reasonably advanced can be palpated by rectal or vaginal examination but other symptoms should cause their discovery at an earlier stage. X-ray examinations including cystograms are helpful only in showing calcareous masses, irregularities or filling defects, which demand a cystoscopic examination to determine definitely their nature.

Cystoscopically, one determines location and studies the character of the growth. In this way the treatment best suited for each individual is decided upon. If the tumor is a single papilloma growing from a small base with long thin papillae it is apt to be benign, especially so if there is no reaction about its base such as edema, induration or congestion of the mucosa. Simple electro-coagulation applied through the cystoscope is usually sufficient for the cure of such tumors. If the tumors are multiple, if the papillae are matted together or short and stubby, if there are areas of necrosis, or if the mucous membrane around the tumor is inflamed or edematous, the growths are usually malignant. The flat sessile growths which, while apparently not infiltrating the bladder wall, spread along the mucosa, covering relatively large areas without projecting markedly into the bladder, are malignant, while those tumors that infiltrate the bladder wall from the beginning, projecting very slightly into the bladder, are the most malignant of all. If seen early they appear as a small irregular mound surrounded by pronounced congestion and edema of the mucosa: necrotic areas and ulcers with indurated margins appear early in their growth. It is usually possible by means of small forceps passed through the cystoscope to secure bits of tissue for microscopic study; this is helpful in determining the degree of malignancy and, to some extent, the prognosis. It must be remembered, however, that bladder tumors as a rule metastasize rather late and even the most malignant types may be successfully dealt with if seen early.

The treatment of malignant growths consists of electrical coagulation, the application of radium, and resection with cautery. Resection is applicable only in those cases in which the tumor is confined to the upper half or free portion of the bladder. Those growing on or near the base are better treated with radium and electro-coagulation. This treatment may be carried out by means of the cystoscope or through open operation, depending upon the location and size of the tumor. If the tumor is so large that it cannot be completely coagulated at one sitting, it is best to open the bladder, remove the redundant portion of the tumor, and plant radium in the base. It is desirable that the bladder be sewed up tight using an in-dwelling urethral catheter for drainage. In this way, cystoscopy to determine the results of the treatment can be carried out much earlier. When treated through the cystoscope, the entire growth may be destroyed with radium, but it is usually better to destroy the projecting portion with electro-coagulation and plant radium in the base. Coagulation alone will usually destroy benign growths but is rarely sufficient for the cure of cancer. Radium emanations are preferable to the element; they are less irritating and can be applied through the cystoscope with greater ease. Regardless of the method of treatment employed it must be remembered that bladder tumors tend to recur locally and it is important that frequent observations of the bladder be made following treatment so that recurrences may be discovered and treated in their incipiency. An early diagnosis and the proper application of electro-coagulation and radium will cure the majority of bladder tumors and will so affect the remainder as to greatly prolong life and lessen the discomfort of the sufferers.

Mrs. J. B. C. first entered St. Elizabeth's Hospital, June the 3rd, 1924, complaining of painful and frequent urination. She stated that she had been treated for alkaline cystitis and deposits in the bladder for a period of ten years. Cystoscopic examination showed the bladder mucosa to be coated over with a dark crystalline deposit which a chemical analysis showed to be chiefly phosphates. After getting the urine acid and instilling silver salts into the bladder, a great deal of the deposit disappeared. I was then able to see along the anterior and right lateral walls of the bladder a number of small ulcerations with slightly indurated margins. There was no evidence of malignancy so far as I could see at that time. After staying in the hospital about a month, she improved a great deal and went home. She came back September the 15th, 1926. Examination showed less deposit on the bladder wall but the ulcerated area seemed somewhat more indurated. The possibility of tumor was considered but, following bladder irrigations

for about a month, the lesions showed a great deal of improvement. The patient was sent home and directed to return in two months. She did not come back until July 14th, 1927. Examination at this time showed two irregular flat growths at the junction of the right lateral

Fig. 1.—Two irregular flat growths that developed in a patient who had been treated for alkaline cystitis for thirteen years.

with the anterior wall of the bladder. (Fig. 1). The entire area was thoroughly desiccated using d'Arsonval current applied through the cystoscope. She again returned August the 18th and the tumors in the bladder seemed to be about as large as they were before any treatment was given. She was then operated upon and a large portion of the right lateral wall and anterior wall, together with the tumor was resected. It was found after resection that the growth was a very low grade squamous cell epithelioma but it had penetrated the entire bladder wall. Sixty mg. of radium in needles was placed in the tissues adjacent to the area from which the tumor had been removed. She made a satisfactory recovery from the operation. It seems to me that this patient's cancer was caused by constant irritation of long standing.

Dr. E. P. M. entered St. Elizabeth's Hospital, January the 23rd, 1927, complaining of intermittent hematuria of about a month's duration. Examination showed a papillomatous growth just behind and over-hanging the right ureteral orifice. (Fig. 2). Apparently there was very little irritation or edema around the bladder wall. The growth was about an inch in diameter. On January the 24th, 1927, he was operated upon under ethylene anesthesia. A suprapubic cystotomy was done. The bladder wall was packed off with gauze and the growth removed by cutting across at its base with the high frequency cautery knife. The pedicle of the growth was only about a quarter of an inch in diameter. The pedicle and adjacent wall of the bladder were thoroughly desiccated and sixty mg. of radium in needles was inserted in this area and left for a period of four hours. The growth was a papillary carcinoma, about grade two. The patient left the hospital March the 15th, 1927, in excellent condition. Cystoscopic examination done on July the 11th, 1927, showed the bladder mucosa to be entirely normal throughout with the exception of a scar on the right side at the former location of the tumor. (Fig. 3).

Mr. C. L. W. was admitted to St. Elizabeth's Hospital on August the 24th, 1927, complaining of bleeding from the bladder of about six weeks' duration. On questioning the patient he said that two years ago he had some bleeding from the bladder which persisted only about two days. He consulted his physician who gave him some medicine and the

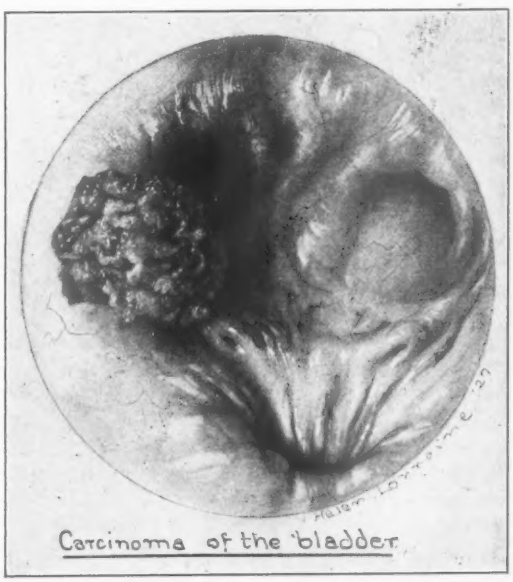

Fig. 2.—Malignant papilloma of the bladder. The pedicle of the growth was only about a quarter of an inch in diameter.

bleeding stopped. He did not suffer any further inconvenience until the onset of his present trouble, about six weeks before admission.

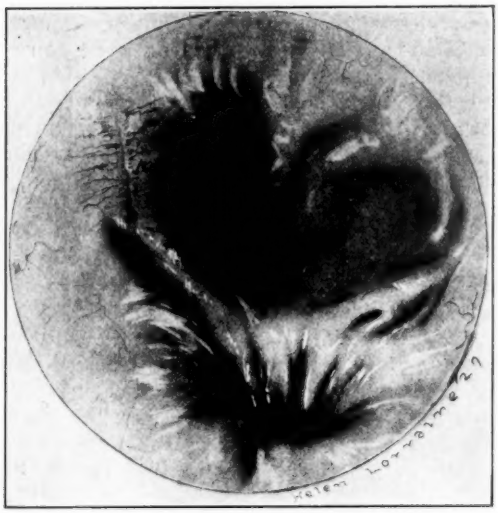

Fig. 3.—Condition of bladder seen in Figure 2, six months after operation.

His urine was definitely colored with blood and he complained of considerable pain when voiding. Cystoscopic examination showed a

Fig. 4.—Large lobular carcinoma projecting into the bladder.

large lobular mass projecting into the bladder from the right side. (Fig. 4). The mucosa around the growth was very much congested. On August the 26th the patient was operated upon under ethylene anesthesia. Suprapubic cystotomy was done and the wall of the bladder packed off and the growth excised at its base with high frequency cautery knife. The pedicle and the area immediately around it were thoroughly desiccated and sixty mg. of radium in needles planted in the area and left for a period of six hours. The growth was about two and a half inches in diameter and was a papillary carcinoma of grade three malignancy. The patient made a satisfactory immediate recovery and left the hospital September the 18th, 1927, in very good condition.

The first of these patients illustrates the probability of a long continued bladder irritation eventually resulting in a malignant growth. The other two show the importance of thoroughly investigating all cases of hematuria.

St. Elizabeth's Hospital.

URETERAL SPASM AND STRICTURE: THEIR CLINICAL SIGNIFICANCE.*

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During the past seventeen years the pathological status of ureteral stricture as described and emphasized by Hunner has been the subject of widespread discussion and at times caustic dispute. The evidence from clinical and necropsy sources for the existence of the lesion, the rationale of its diagnosis, and the propriety of its specific treatment have all been just indefinite enough to be confusing, and have been based on data variously interpreted,—on the one hand as scientific and sound, and on the other, as indeterminate and open to grave doubt. However this may be, those conversant with the urologic literature of the day must realize that Hunner's teaching has made its impression and is meeting each year with increasing acceptance in the profession. Even the most conservative are yielding to the test of ureteral dilatation in cases of obscure and indeterminate pain in the region of the urinary tract, even though this is done with the sacrifice of some prejudice and with much mental reservation.

Time and the clinical experience of careful observers who analyze and re-analyze their clinical and autopsy data, without prejudice and without being either too radical or too

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conservative, will help us to evaluate the exact status of ureteral strictures. Therefore, let us approach the subject with the attitude of an open mind.

Spastic reactions or tonic contraction states in smooth muscle structures such as the esophagus, gastric cardia, pylorus, intestines, arteries, etc., with the production of pain, are well recognized and therapeutic measures, for these conditions are to some extent accounted as standard procedures. If reasoning by analogy is ever permissible, we may easily believe that the rich sympathetic innervation of the renal pelvis and ureter adapt these structures well to the occurrence of intrinsic spastic phenomena, such as occur in smooth muscle structures elsewhere.

In addition to the anatomic features of the pelvis and ureter, their automatism of peristalsis, and their type of innervation, the evidence from the physiological and experimental surgical laboratory is illuminating. Irritation mechanically or by drugs), ligation, stripping, and denervation experiments lead us to feel that nodal spasm from irritation at an inflammatory site or from some imbalance of the nerve supply, may possibly explain the pain or ureteral stasis with its sequelae, which occurs in some of those obscure conditions, to which the terms nephralgia, ureteralgia, nephritis dolorosa, and hysterical renal or ureteral colic, have been applied.

It is a leading question of the day among urologists whether the mechanism of so-called ureteral stricture involves organic stenosis or whether we are including also, under this diagnosis, local spasms due to inflammatory irritation, reflex causes, or disturbance of the autonomic nerve supply. Hunner early conceived of a "wide stricture area", i. e., an area of ureteritis, set up by focal infection. During periods of inflammatory quiescence, the strictured areas are more or less patent, urinary drainage more or less competent, and urologic findings likely to be minor. With exacerbation of the inflammation there occurs ureteral spasm or edema; ureteral occlusion is more pronounced, and a series of pathologic changes such as stasis, urinary tract infection, and even bleeding or stone formation, ensue.

The analysis of data taken from the clinical records of sixty patients observed during the past four years and considered to belong to the spastic ureter group has proved interesting. It should be emphasized that these patients were uniformly subjected to most scrupulous examination from the standpoint of internal medicine, neurology, gynecology, orthopedics, and urology. Many of them had been previously treated by numbers of physicians, surgeons, and specialists in consultation, for the same group of symptoms presenting when they came under our care. Cases presenting major urologic findings such as stone, tumor, tuberculosis, and pyonephrosis, have been excluded unless, at the same time, definite ureteral obstruction was found by the bulb-carrying catheter, or the pyeloureterogram showed ureteral dilatation above a constricted area. Eleven men and forty-nine women comprised the group.

Symptoms presented included dysuria, and ureteric or renal pain, variable in type from a sense of discomfort to intense colic-like attacks simulating the presence of impacted stone. Previous operation for the relief of symptoms had often been performed and most often without relief. In all, forty-seven operations had been performed on the sixty patients, forty-two of these having involved laparotomy. The urologic findings were usually minor, bilateral renal function being good, and the urine showing as a rule only an occasional white or red cell, often with a trace of albumen. Periodic attacks of pyelonephritis were often seen. The bulb-carrying catheter demonstrated a hang on withdrawal almost consistently, three times in the upper ureter, six times in the middle ureter, and forty-nine times in the lower ureter or at the meatus. Frequently meatal spasm and general ureteric spasm, with intense gripping of the catheter throughout the course of the ureter, were encountered.

Pyeloureterography was interpreted as normal eight times. Twenty-one cases presented slight blunting of the calyces, eleven ureteral dilatation, seven hydronephrosis, five kink of the ureter, eleven multiple areas of spasm (stricture?) and six renal ptosis.

Dysmenorrhea, menorrhagia, menstrual exacerbation of urinary symptoms, tenderness in the vaginal vault, gastro-intestinal symptoms, abdominal pain variable in site from time to time, headache, pain in the hip and thigh, with radiation to the knee, and constipation with painful defecation, have been associated symptoms. Concomitant pathology such as infections of the teeth, sinuses, tonsils, gall-bladder, prostate, and cervix, visceroptosis, colitis, etc., has been frequently demonstrable, and

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treatment of these conditions has been considered of primary importance before attempting any extensive therapy of the urinary tract condition. In twelve instances we noted that the urinary tract symptoms were aggravated by a preceding respiratory tract infection.

Our first effort at treatment has been ureteral dilatation. For the purpose we have found bougies, bulb-bearing catheters, and metal dilating olives used with the No. 12 F guide of the Braasch direct cystoscope of value, although the operating guide of the Buerger cystoscope or the McCarthy pan-endoscope may be found equally satisfactory in the hands of those who prefer these instruments. The size of the dilating bulb has varied from 12 F to 20 F. We have followed the advice of Hunner and as a rule dilated both ureters, an average of four dilatations to each side having been carried out. Ordinarily a 12 F to 14 F bulb has given good results but, if symptoms persist, dilatation to 18 F or 20 F has sometimes been necessary for relief. The severity of the cystoscopic reaction has naturally varied. The dilator unquestionably does provoke more post-cystoscopic pain than the passage of the usual 5 F or 6 F catheter. However, care in asepsis, the utmost degree of gentleness in manipulation, the avoidance of trauma, especially that produced by attempting to drive a dilator through an area of transient spasm, and gradual rather than immediate dilatation to higher degrees, have led to very few mishaps and none of these have proved serious.

With the subsidence of the post-cystoscopic reaction, relief for a time has been the rule but the end results have not been as good as we should have expected from the degree of initial improvement. Eighteen patients have remained well for over a period of one year, thirty-two seem definitely improved, and ten are unimproved or still under treatment. One patient was subjected to nephropexy with decapsulation and partial periarterial sympathectomy with relief after the dilatation method had failed. A similar case was relieved by such an operation for several months when recurrence of pain, fever, and swelling of the kidney, without hydronephrosis, forced us to nephrectomy. Recurrence of the pain on the opposite side after eighteen months has been temporarily relieved by dilatation. Two other nephrectomies have been done after repeated dilatation had failed. These patients seem much improved but still complain of some pain at the old stricture site. Another patient had recurrence of typical colics on the opposite side one year after nephrectomy done elsewhere. After many periodic recurrent attacks, with pyelonephritis, spontaneous hematuria, and on two occasions anuria for several days, persistence in dilatation of the ureter brought relief and she is now free from symptoms for nearly two years.

The pathology of the kidneys removed was of interest. Lymphoid infiltration, especially in the cortical areas, cloudy swelling in the collecting tubules, with possibly slight dilatation, was noted in all three. Two of the kidneys showed capsular and perirenal sclerosis of the type described by O'Conor. Hypertrophy of the walls of the ureter was slight and on the whole these tissues showed nothing remarkable.

Comment

In attempting to differentiate organic stenosis and intrinsic ureteral spasm, there has been difficulty. In making either diagnosis there is unquestionably a variable percentage of error. The post-mortem or surgical demonstration of the strictured area would be our one positive criterion but this is not frequently applicable under clinical conditions. Goldstein and Carson, Peacock and Hain, and Hunner and Wharton have given us data which is suggestive. The report of Martin Schreiber recently published as the result of a study of 100 consecutive unselected autopsies would lead us to believe that the postmortem incidence of ureteral stenosis from organic disease is about 12 per cent. This work appears to have been conducted along scientific lines and those of us who are interested will await confirmation or dispute of this evidence by similar research in the hands of others.

Clinical methods give only presumptive evidence. The hang test may be positive with either spasm or stricture. The catheter itself may mechanically stimulate spasm locally and thus produce transient obstruction to entry or withdrawal. Watching the withdrawal of the bulb through a cystoscope nearly always reveals a hang at the meatus.

The technique of pyeloureterography is neither satisfactory nor standardized. All media used are more or less irritating and may in themselves produce nodes of spasm or confusing hyperperistalsis at various points, so that the interpretation of local narrowings of

the lumen is open to question. Hydronephrosis, ureteral dilatation, and infection could be the result of persistent spasm or of organic stricture. According to Hunner the "wide stricture" with its periodic relaxation and spasm may account for any variety of dilatation, a normal pelvis, or even a pelvis smaller than normal.

The relaxation of the ureter under regional anesthesia is well known and has been frequently employed to pass ureteral obstruction, stone, or stricture in spasm. It may give positive information if we assume that there is organic stenosis when there is no relaxation of the obstruction. The reproduction of similar pain by passage of the bulb or by pelvic distention is merely presumptive evidence that we are at the seat of trouble. It is of no avail in deciding between stricture and spasm.

The type of personality presented by many patients of this group has left its impression. Thirty-four of them especially have been classified as hypersensitive, psychoneurotic, or what we might call "hyperkinetic" individuals who have not too well adapted themselves to the stress of modern life. A few of them have had periodic attacks of pain in first one part of the body, and then another, often as transient as they are intense. It would seem that everywhere that smooth muscle tubules occur, especially within the abdomen, this smooth muscle is capable of spasm in the absence of gross organic affection. For instance, precordial pain, sinking spells, palpitation, intestinal colic, cramps one day in the epigastrium or over the gall-bladder, the next day in the sigmoid region, etc., may occur in the same individual from time to time. Thus the problem may be to some degree neurologic as well as urologic and the ureteral colic may be only one phase of a general spastic neurosis. Thus the analogy of ureterospasm to pylorospasm, cardiospasm, Raynaud's disease and the like may not be far fetched and may have something in common in their underlying neuromotor "dyskinesia", to use a term of Aschoff's.

From the evidence given above we cannot draw positive conclusions. We have stated a problem rather than solved it. Impressions however are worthy of record, even though these impressions be changed by subsequent experience. The conditions of ureteral stricture, spasms, and the allied states of nephralgia, and hysterical kidney colic perhaps represent a neuromotor dysfunction such as is seen in the esophagus, cardia, and other smooth muscle tubules. We have purposely avoided the subject of the sequelae of ureteral stasis. The effort has been made to present what we know and what we do not know of its cause. Unquestionably, organic stenosis of the ureter does occur and perhaps not infrequently. However, in cases receiving treatment it is probably not always present. The clinical methods for differentiating ureteritis and intrinsic spasm are not clean cut and often fail to tell us which mechanism is at fault in the individual case. In our own hands about 80 per cent of the cases diagnosed and treated as belonging to the group have received benefit, while 33 per cent have had one year or more of entire relief.

Yet we feel that our present methods of treatment are not satisfactory, especially in the matter of end results. We need more work of the pathologist and of physiologists of the type of Gaskell, Sherrington, Hunter and Royle to clarify the neurological features of the condition. Dilatation in many of these hypersensitive patients presents a temporary ordeal and recurrence is all too frequent. However, if the utmost care is taken to exclude other pathology, ureteral dilatation is as yet our best initial effort and should be tried as a therapeutic test at the beginning. It is certainly never so grave a procedure as exploratory laparotomy which is undertaken perhaps too lightly in many patients of the group.

There is need for further experience with regard to surgical therapy such as the denervation or sympathectomy operations practiced by Ambard and Papin, and the surgical exploration of the strictured area with a view to ureteroplasty or resection. Nephrectomy is always revolting when done merely for the relief of pain and should be forced upon us only when repeated conservative measures have failed. Even then there is no assurance that permanent relief will be obtained, especially if ureterectomy is not carried out at the same time.

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419-421 *Shenandoah Life Building.*

"HERE'S TO HIM."

Here's to the man whose hand
Is firm when he clasps your own—
Like a grip of steel
That makes you feel
You're not in the world alone.

Here's to the man whose laugh
Puts the somber clouds to rout—
And the man who's far
And kind and square
To the one that's down and out.

(*Selected*)

CHRONIC PYURIA IN CHILDREN: FINDINGS IN A SERIES OF CASES.*

By JOHN H. NEFF, M. D., University, Va.

In very recent years Stevens[1], Kretschmer[2], Bugbee and Wollstein[3], Caulk[4], Hunner[5], among others, have directed attention by timely papers to the need of attacking the urological problems in children in essentially the same manner as those of adults. The reports of these authors have clearly demonstrated the feasibility of such practice and the improved results that follow therefrom. The correctness of the attitude finds no better verification than in the field of kidney infections.

Pyelitis is the urological diagnosis most commonly made in infants and children. The frequency and importance of this disease have been emphasized by innumerable writers. Its intimate relation to gastro-intestinal disorders and to remote infections is universally recognized. Many cases respond readily to dietary and medicinal therapy, aided, oftentimes, by eradication of distant inflammatory foci. Others, however, run a protracted course,—some with recurrent sharp exacerbations, some with a continuous slight elevation of temperature, all usually with a persistent pyuria. Notably in these chronic cases there may well be in the urinary tract itself acquired or congenital changes having a causal relationship to the inception or persistence of the renal infection, and further, making certain that, untreated, kidney damage will be far graver than that of a simple pyelitis.

To stress the necessity of complete urological study for this latter group particularly, I wish to give in a little detail the histories and findings in a selected series of children with chronic pyuria. The conditions reported are illustrative rather than comprehensive. Only limitations of space and time prevent the inclusion of other equally important possibilities such as calculi and tuberculosis.

Case I. Unilateral Infected Hydronephrosis due to Aberrant Vessels.—F. S., girl, aged eight, was admitted February 7, 1923. For twelve months she had had intermittently pain in the left flank accompanied by nausea, slight fever, dysuria and pyuria. Physical and X-ray examinations were negative. Catheterized urine contained pus and bacilli. Ureters were readily catheterized. Left urine showed 25 pus cells to the high power field, culture B. Coli. Right urine was normal. An attempted left pyelogram resulted in an unsatisfactory film. *Diagnosis:* Left pyelitis.

The left pelvis was lavaged on three visits during the next month. On March 8, 1923, the left urine showed four pus cells and many bacilli to the high power field.

She was next seen January 13, 1925. There had been practically no symptoms in the interim until a rather severe attack ten days before. The left ureter was catheterized with a No. 8 catheter by the Kelly method. Urine showed twelve pus cells to the field, many bacilli. Phthalein output in sixteen minutes after intravenous injection was 6 per cent, bladder collection 25 per cent. In attempting a pyelogram pain developed after the injection of 5 c.c. Only the lower third of the ureter was outlined. This was obviously dilated. *Diagnosis:* Left ureteral stricture, pyelitis.

January 31st the low stricture was dilated through No. 12 F. Pelvic capacity seemed to be 8 c.c. The patient had rather severe pain for the next two weeks. On February 14th the ureter was well shown after the injection of 7 c.c. of sodium iodide but the pelvis was not outlined. Upon advancing the catheter a little farther, the flow for the first time in the many cystoscopies became rapid and continuous. Injection of additional iodide solution demonstrated a large rounded hydronephrosis. A nephrectomy was advised but refused.

Patient returned July 16, 1925, because of further typical attacks. A nephrectomy was done through a lumbar incision. The kidney was quite thinned out. The pelvo-ureteral juncture was sharply angulated over aberrant vessels going to the lower pole, the pelvis bulging forward over these vessels in a striking manner. Convalescence was uneventful, ultimate result excellent.

Case II. Infected Hydronephrosis of one Side of a Horseshoe Kidney.—M. B., girl, aged ten, was admitted September 28, 1925, because of acute right mastoiditis. A simple mastoid operation was done. She was discharged five weeks later. During her stay she ran an unexplained low-grade temperature. The urine averaged three to ten pus cells to

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Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

the high power field. She was readmitted November 10, 1925, with an abscess near the mastoid scar. This was promptly drained.

She was referred for urological consultation November 28th, because of the continued temperature and the constant finding of a moderate amount of pus in the urine. There was a history of recurrent pain in the left flank for four years. In 1922 a cystoscopic diagnosis of left pyelitis had been made in New Orleans. Pelvic lavage had been employed there four times.

Abdominal palpation gave no positive findings. X-ray examination of the urinary tract was negative.

Cystoscopy. The bladder was normal. The left ureter was readily catheterized, the urine was pus free, culture negative. The right catheter could be passed only 3 cm., no flow was obtained.

Cystoscopy, December 4, 1925. Bladder urine showed twelve pus cells to the field. The ureters were readily catheterized after the Kelly method. Both specimens of urine were pus free. An attempted left pyelogram showed only the ureter filled. This flared upward and outward quite abruptly about the level of the iliac crest.

Cystoscopy, December 8, 1925. Left ureter was catheterized to the pelvis, flow rapid and continuous. Specimen contained many degenerated pus cells, smear showed no organisms, culture negative. A fifteen minute intravenous phthalein test gave a 17 per cent bladder collection, no output on the left. Pyelogram demonstrated a huge multilocular hydronephrosis with the line of the ureter bifurcating the pelvic shadow (Fig. 1). The catheter was left in place for drainage. Severe pain and active nausea followed its removal five days later.

Cystoscopy, December 15, 1925. Both ureters were catheterized. A right pyelogram outlined a slightly dilated, non-rotated type of pelvis (Fig. 1).

Fig. 1. Case II.—Note bilateral non-rotation of pelvis, outward flaring of both ureters, left multilocular hydronephrosis.

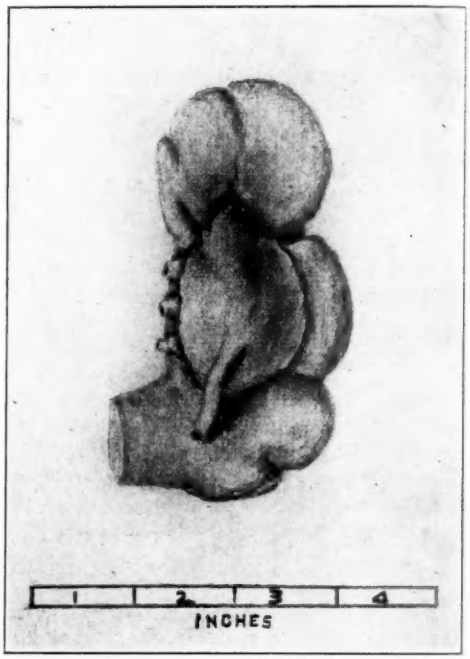

Fig. 2. Case II.—Sketch drawn to scale of left half of horseshoe kidney. Nephrostomy secured shrinking to one-half or less of the original size.

Diagnosis: Infected hydronephrosis of the left half of a horseshoe kidney. The left catheter was kept in place. On December 22, 1925, a left nephrostomy was done. This seemed clearly indicated because of the patient's poor condition and as a means of rendering a later nephrectomy safer and easier.

Early in January, 1926, she developed a left otitis media. This was shortly complicated by mastoiditis for which a simple mastoid operation was performed. The patient remained in the hospital until April 18, 1926—over five months. During the whole period she had slight fever with an occasional elevation to 103° or more. This was never satisfactorily accounted for in that, with the kidney well

drained and both ears healed, no additional lesions could be demonstrated by careful and repeated studies. Blood transfusion, autogenous staphylococcus vaccine therapy and the usual supportive measures did not secure much improvement in her general condition. She was considered too frail for nephrectomy and was therefore sent out in hope of a possible gain from prolonged renal drainage under home surroundings.

She was re-admitted September 20, 1926. Her weight had increased seven lbs., hemoglobin was 75 per cent, red blood cells 3,000,000, there had been no further trouble with her ears. At home her temperature had ranged between 99° and 100°. The left half of the horseshoe kidney was removed October 5, 1926. The kidney had shrunk to one-half or one-third its size before nephrostomy (Fig. 2). The immediate reaction was violent, the later convalescence uneventful. She was discharged after four weeks.

In September, 1927, her mother reported the child had gained twenty-five lbs. since her original admission and that her general condition seemed to be excellent.

Case III. Stricture of the Ureter With Pyonephrosis.—M. H., boy, aged three, was admitted April 22, 1927. In November, 1926, he had had a ten day febrile attack diagnosed grippe. Some pus was found in his urine at the end of this sickness. From then to admission he had had six or seven attacks with high temperature, vomiting, frequency of urination and pain in the left lower abdomen. An X-ray examination, as well as a cystogram, at home, had been negative.

Physical examination was essentially negative. Urine contained a tremendous quantity of pus, smears showed a few bacilli, cocci in chains, no acid-fast organisms. Bladder culture grew only streptococcus hemolyticus.

Cystoscopy. Bladder appeared normal save for oedema and pouting of the deft ureteral orifice. Both ureters were readily catheterized. The right urine was pus free, the left loaded with pus, both cultures negative. A left pyelogram showed a very dilated tortuous ureter with the catheter coiled in the lower segment. The pelvis while poorly outlined, was evidently much dilated. (Fig. 3). The left catheter was fastened in position for drainage. Upon its removal forty-eight hours later, the child's temperature rose from 100° to 103°. A nephrectomy was promptly done. The kidney was a mere shell. (Fig. 3). The ureter was at least 2 cm. in diameter and it was a question whether, in view of the demonstrated

Fig. 3. Case III.—Observe the very dilated tortuous ureter. The insert shows the injected kidney and ureter after removal. The kidney is a mere shell.

stricture at the orifice, the ureter should be ligated or brought out in the wound. Decision was made to dissect out as much of the duct as was readily accessible and to trust to there being sufficient drainage into the bladder to avoid trouble from the ureteral stump. One-half or possibly more of the ureter was removed, the divided end inverted with a purse-string suture.

The boy was discharged after three weeks. He was running a slight temperature, urine showed 18 pus cells to the field. Temperature came to normal ten days later and remained normal. On September 30, 1927, he had gained five lbs., urine was pus free, general condition excellent.

Case IV. Ureterocele With Pyonephrosis.—C. S., boy, aged nine, was admitted March 2, 1927. Two years before admission he had had a febrile attack with general malaise diagnosed influenza. Pus was found in the urine. From then on he had had attacks of headache, gastric upset and bladder irritation every three or four months, and a constant pyuria. Guinea pig inoculation with bladder urine at home had given negative results. The

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child was brought to the hospital only after much persuasion from a consulting pediatrician.

The boy was rather thin, slightly anemic. His temperature ranged between 99° and 100°. Otherwise physical examination, including X-ray of the urinary tract, was negative. Urine showed much pus, stains for tubercle bacilli were negative, culture B. Coli.

Cystoscopy. There was no cystitis. The right urine was pus free. The left ureteral orifice was minute and presented on a typical small ureterocele. (Fig. 4A). All efforts to

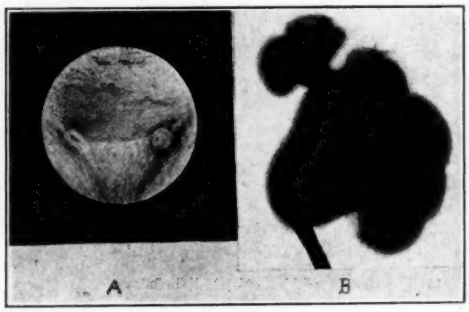

Fig. 4. Case IV.—A. Left ureterocele, pin-point orifice. B. Pyelogram of corresponding kidney after removal.

enter the left orifice failed. The tissue about the orifice was then vigorously fulgurated.

Cystoscopy, March 31, 1927. The ureterocele had been replaced by an actual retraction of the orifice but with no increase in its size. Efforts to enter it were unsuccessful.

Cystoscopy, June 3, 1927. Indigo carmine was given intravenously prior to the examination. The right efflux was a deep blue, no color appeared at the left orifice. The left ureter could not be catheterized.

Cystoscopy, June 6, 1927. Effort to catheterize the left ureter again failed. The right urine showed no pus. In seventeen minutes after intravenous injection phthalein output from the right catheter was 40 per cent with no collection in the bladder urine. It seemed clear that the functionless left kidney was the source of the pyuria. Nephrectomy was advised.

In removing the kidney the pleural cavity was inadvertently opened but without immediate or subsequent ill effects. The kidney was a thin-walled shell, the ureter greatly dilated. (Fig. 4B). Because of the marked stenosis of the ureteral orifice, the ureter was brought out of the lower angle of the wound. The patient's condition did not warrant protracting the operation to do a complete ureterectomy. Convalescence was uneventful.

Several later unsuccessful attempts were made to dilate the ureteral orifice from above. On August 3, 1927, colored fluid injected into the ureter did not enter the bladder and a ureterogram showed complete closure of the orifice. The boy's general condition was much improved, the urine pus free.

Case V. Atony of the Bladder, Bilateral Hydro-Ureter and Pyelonephritis.—J. E., girl, aged six, was admitted November 22, 1926. At the age of four, urine had been noted to have a disagreeable odor, urinalysis revealed much pus. Pyuria had been present on all subsequent examinations. There had been no chills, no renal pain, no frequent or difficult urination, no incontinence, no enuresis. She had not shown a normal gain in weight, appetite was small.

The conspicuous finding on physical examination was an abdominal mass reaching from the symphysis well above the umbilicus. Its shadow on an X-ray film came within 3 cm. of the 12th ribs. (Fig. 5). After she voided 800 c.c. and catheter obtained an additional 500 c.c., the mass disappeared. Parent's statements suggested that the bladder had been chronically over-distended for many months.

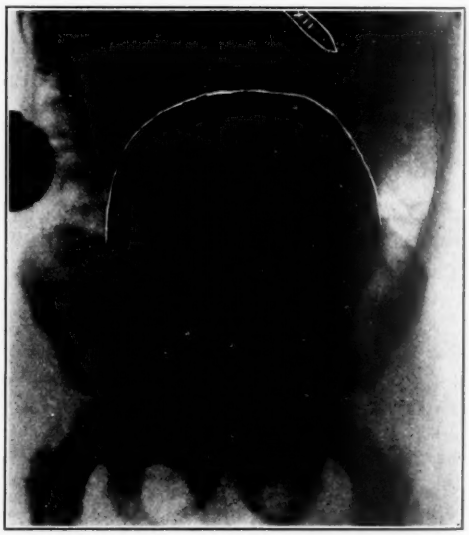

Fig. 5. Case V.—Note hugely distended bladder. Upper border bladder shadow and outline left 12th rib have been emphasized for clarity.

Suspicion was immediately aroused that there was either an obstruction to bladder drainage or some disturbance of bladder innervation. Neither was shown. Every examination to demonstrate a lesion of the spine or central nervous system gave normal findings. Repeated urethroscopic and cystoscopic study revealed no obstructive process. The urethra readily admitted a No. 24 F. sound. Catheterized urine contained much pus, many bacilli. Phthalein output in thirty minutes after intravenous injection was 30 per cent.

A cystogram showed regurgitation up the dilated tortuous left ureter. (Fig. 6). Through the cystoscope the bladder was found moderately inflamed, moderately trabeculated. Both ureteral orifices were widely patulous. The right kidney urine contained thirty pus cells to the field, culture B. Coli; the left urine six pus cells, culture negative.

The child remained in the hospital five weeks. Her temperature ranged around 100° during this whole period. She was first treated by catheterization and bladder irrigation twice daily. Later a continuous automatic bladder irrigation through an in-dwelling catheter was employed. Her residual urine slowly decreased. The mother was taught to catheterize the patient and instructed to drain and lavage the bladder once daily for an indefinite period. The child was urged to empty the bladder as completely as possible at each voiding.

Fig. 6. Case V.—Cystogram showing regurgitation up left ureter and marked dilatation of the upper tract on this side.

By March 9th the average residual urine was one ounce. In August the child was reported to show much systemic improvement, to be active, energetic, and with a hearty appetite. Treatments were being given every two or three days.

Case VI. Congenital Hypertrophy of Verumontanum, Bilateral Pyonephrosis.—M. E., boy, aged two, entered hospital January 11, 1927. Sickness had begun five weeks before admission with irritability, restlessness, and an irregular temperature. Early urinalyses had been negative, urine gradually had become grossly purulent as he developed suprapubic pain, strangury, enuresis. Temperature had frequently reached 104°. Physical examination had shown nothing unusual. X-ray films of the urinary tract were negative.

Effort to enter the bladder with an ureteral catheter failed. A 12 F. metal catheter first met a seemingly spastic obstruction in the deep urethra, then passed readily. A 15 F. sound was easily passed. Catheterized urine was very purulent, gave streptococcus hemolyticus in pure culture. A cystogram revealed regurgitation up the dilated tortuous left ureter, bladder contour was normal. Several later cystograms did not demonstrate right regurgitation. Two-hour phthalein output was 10 per cent. An average residual urine of 130 c.c. was found upon repeated catheterization. Under daily catheterization and irrigation his temperature dropped materially, and had a daily maximum between 99° and 100° after constant drainage was secured by an in-dwelling catheter.

Cystoscopy, February 10, 1927. There was an exudative cystitis. The internal urethral orifice shared in the oedema but otherwise appeared normal. On withdrawing the cystoscope into the urethra the edge of a rounded mass arising from the urethral floor could barely be visualized. The right ureter was catheterized, urine was pus-laden, culture streptococcus hemolyticus. Pyelogram showed the catheter coiled up in the lower portion of a dilated tortuous ureter. (Fig. 7). The mass in the prostatic urethra was interpreted to be a hypertrophied verumontanum and responsible for the higher obstructive changes.

Under continuous catheter drainage the boy

gained three lbs. by March 1, 1927. Through a 17 F. urethroscope the same rounded mass was seen in the deep urethra and was fulgurated. Fulguration was difficult and not entirely satisfactory. The procedure was repeated more effectively March 17, 1927, through a 22 F. endoscope. At this visit the urine was much clearer, two-hour phthalein output 45 per

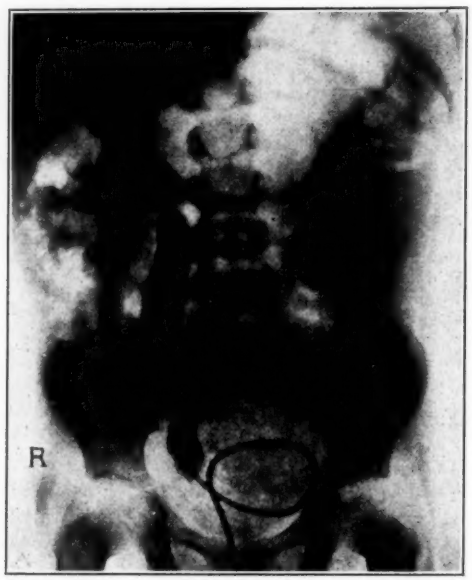

Fig. 7. Case VI.—Right pyelo-ureterogram. Note the catheter coiled in the greatly dilated ureter.

cent. After removing the permanent catheter on March 25th everything went along nicely for three days. The child then had a chill followed by temperature of 104°. The catheter was immediately replaced. Quite interestingly the residual urine was only 35 c.c. in contrast with the former residual of 130 c.c. The catheter was pulled out a few days later. Its reinsertion was very difficult and was followed by a severe reaction. It seemed the part of wisdom to abandon urethral work for a time. A suprapubic cystostomy was therefore done April 11, 1927. The bladder was found as thickened as in an old prostatic.

On September 30, 1927, suprapubic drainage was being continued. From time to time the child had had a slight febrile attack but on the whole had made steady improvement. He was very energetic, urine was less cloudy, weight six and one-half lbs. above that on first admission. Further attack upon the verumontanum was planned for some future date.

Case VII. Stricture of the Urethral Meatus With Pyelitis. — B. I., boy, aged fifteen, was admitted July 2, 1927. In December, 1926, he had had a two weeks' febrile attack diagnosed influenza. A week later a diagnosis of pyelitis was made. From then till admission he had had at weekly or two-weekly intervals pain in the right flank, chills and high temperature. From March to June he had received intensive treatment for malaria with no benefit. He was referred because of his history and the large amount of pus in the urine.

On admission the external meatus was found to be minute and the foreskin densely adherent. He was discharged after circumcision and meatotomy. Three weeks later he showed distinct improvement. There had been one mild febrile attack.

Cystoscopy, July 25. Bladder urine contained four pus cells to the high power field, many bacilli. There was a slight basal cystitis. Ureteral orifices were definitely larger than the average normal, the right more so than the left. Left urine and culture were negative, right urine showed a few pus cells, culture B. Coli. Phthalein output on the left side in fifteen minutes was 21 per cent, on the right, 4 per cent, bladder collection 6 per cent. Right pyelogram outlined a slightly dilated double pelvis with the ureter moderately dilated all the way to the bladder.

It was advised that no further cystoscopic treatments be given unless the pyuria persisted or there were further febrile attacks. Up to October 8, 1927, there had been no more attacks and the urine was then pus free. It seemed fairly certain that the small meatus had been responsible for the persistence of the pyelitis.

Case VIII. Pyelitis Secondary to Abscessed Teeth and Infected Tonsils.—C. D., boy, aged six, was admitted November 28, 1924. During the preceding four months urination had been abnormally frequent, the urine cloudy and once, for several days, grossly bloody. He had had no abdominal pain, no chills, his general condition had remained unchanged. Two abscessed teeth had been removed in 1923; he had had no acute tonsillitis.

On admission he was found to have six abscessed teeth and slightly infected hypertrophied tonsils. Urine showed much pus, a few

red blood cells, no casts, a trace of albumin. Bladder cultures, and stains for tubercle bacilli, were negative; a few cocci and bacilli were found. A cystogram was normal as were X-ray films of the urinary tract. During a fifteen day stay in the hospital his temperature ranged between 99° and 100°. Tonsils and abscessed teeth were removed. At the time of his discharge urine showed no improvement. Six weeks later he was free of all symptoms. The urine was clear, contained neither pus nor blood. Sixteen months after admission he had gained twenty-five lbs., the urine was normal.

These cases, I think, support the attitude advocated at the beginning of this paper. Nothing is further from my mind than to urge routine cystoscopy immediately a diagnosis of pyelitis or pyuria is made. Precipitate cystoscopy should be decried for the adult and even more so for the child.

Short of cystoscopy much valuable information may be easily obtained by X-ray examinations, cystograms, investigation for residual urine, bacteriological study of the catheterized urine, estimations of renal function, and so on. But it should be stated that cystoscopy itself in children is not the very difficult procedure that many possibly believe. The female urethra gives practically no trouble. The improved cystoscopes of modern instrument makers steadily lower the age at which the male urethra may be penetrated without undue trauma. Once the bladder is entered, the examination goes along with relatively the same ease as in the adult. A general anesthetic will be necessary in many cases and, when required, should cause no more hesitation than in other situations where such aid is requisite for accurate diagnosis or rational treatment.

Patients of the type of Case 8 are much more frequently seen than most of the others here reported and should be handled accordingly. No doubt the large proportion of children with pyelitis clear up under an appropriate medical regime. But cases failing to respond in a reasonable period or presenting unusual features, should not be denied the benefits of the thorough urological study sought without question for the adult having similar symptoms. The child can no more outgrow urinary tract infection in the presence of stasis than the adult.

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CLINICAL OBSERVATION OF PYURIA IN INFANCY AND CHILDHOOD: AN ANALYSIS OF THIRTEEN CONSECUTIVE CASES.*

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The presence of pus in the urine is significant of infection somewhere in the genito-urinary tract and to designate the condition by calling it pyelitis, pyelonephritis or pyelocystitis is attempting a diagnosis on insufficient data. Other observers, Helmholz[1] in particular, have called attention to this and the writer merely wishes to reiterate the wisdom of this nomenclature. Only those cases in which uncentrifuged specimens showed four or more pus cells (singly or in clumps) under high power microscopic fields for a period of five days or longer, were classed as pyuria. Routine urinalyses were made on all infants and children upon admission to Bellevue Hospital and whenever any patients had an unexplained fever. The thirteen cases here reported represent .4 per cent of the total male admissions (703) and 1.6 per cent of the total female patients (629) or .9 per cent of the total admissions (1,332) over a period of nine months (October 1, 1925 to July 1, 1926).

There appear to be two types of pyuria—primary and secondary: the former, the ordinary type of pyuria in which the disturbance is primarily a urinary one; the latter, as its name implies, is secondary to infection elsewhere in the body. The two groups of cases are equally represented in this series.

The great majority of cases of pyuria occurred in females, the proportion being about four to one. The ages ranged from four months to nine years. Two patients gave a previous history of a similar infection. Exposure to cold, previous ill health, intestinal

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derangements, rickets, secondary anemias and malnutrition appear to be predisposing factors. In the majority of cases, the apparent exciting cause could be traced to foci of infections which are in order of their frequency, infections of the tonsils, nasopharynx and middle ears.

No postmortem examinations were made on the fatal cases as permission for autopsy could not be obtained. Helmholz[2] has secured much information along this line in his experimental work on rabbits. As to whether the pyuria is due to an ascending or hematogenous infection, he[3] has shown that by cross section of kidneys (in animals previously injected with bacteria by intravenous and intracystic methods) it was possible to localize certain processes of infiltration which characterized the source of infection. Intravenous lesions tend to localize in the kidney substance and in the papilla and adjacent lining of the pelvis, while intracystic injections give rise to lesions localizing in the small finger-like projections of the parietal wall of the pelvis. A number of pathological examinations by various men have failed to show any inflammation of the kidney pelvis or ureter, though repeated urinalyses showed much pus to have been present. Since few cases ever come to autopsy, very little is known of the pathology of pyuria in infants and children. Recently, Chown[4] has advanced the opinion that pyuria is most commonly a result of suppurative nephritis and suggests the use of that term in place of pyelitis, pyelonephritis, pyelocystitis or pyuria. Schloss[5] has been unable to find inflammation limited to the kidney pelvis and believes like Chown that the pyuria is in reality a suppurative nephritis.

The classical text book symptoms[6] were not the rule in this series. In the primary pyurias there were very little marked constitutional upsets, the main symptoms being fever, usually intermittent, and pain in the legs or abdomen. Two of the children complained of dysuria. Of the six primary type of cases there was only one patient who had repeated chills. In the secondary pyurias there were likewise seen intermittent septic temperatures, but more constitutional upsets. The commoner manifestations in order of their frequency were cough, coryza, vomiting, anorexia and fretfulness. In no case could the parents point to the exact time or even approximate time of onset, nor was there a history of convulsions, twitchings or "blue spells". The symptoms associated with secondary cases might have been due to the foci of infections as well as to the pyuria.

Other than the finding of foci of infections, the routine physical examinations proved unhelpful in the diagnosis. The majority of the patients did not appear acutely ill. In three cases there were positive intradermal tuberculin reactions.

The urinary findings were of course the outstanding feature in establishing the diagnosis

Table 1—Admission Symptoms

Patient	Age	Sex	Onset	Fever	Cough	Coryza	Vomiting	Miscellaneous
P. M.	6 yrs.	F.	grad.	intermit.	.....	.....	.....	pain in chest and abdomen, frequent scant urine
E. K.	19 mos.	F.	grad.	intermit.	pos.	.....	pos.	.....
M. P.	5 mos.	F.	grad.	contin.	pos.	pos.	pos.	.....
V. L.	1 yr.	F.	grad.	absent	.....	.....	.....	.....
S. S.	8 yrs.	F.	grad.	absent	.....	pos.	.....	lump in left groin
F. G.	3 yrs.	F.	grad.	intermit.	.....	.....	.....	hematuria, pain in legs, dazed
F. G.	3 yrs.	F.	grad.	intermit.	pos.	.....	.....	dysuria
B. H.	18 mos.	F.	grad.	contin.	.....	.....	.....	listless
J. A.	9 mos.	F.	grad.	absent	.....	.....	.....	.....
W. P.	4 mos.	M.	grad.	contin.	.....	.....	.....	.....
A. G.	5 mos.	M.	grad.	intermit.	.....	.....	.....	.....
I. D.	9 yrs.	F.	sudden	intermit.	.....	.....	.....	repeated chills, pain in left side of abdomen, dysuria
C. P.	6 mos.	M.	grad.	intermit.	.....	.....	.....	swelling of face and body, pale

TABLE 2.—POSITIVE PHYSICAL FINDINGS ON ADMISSION

PATIENT	ACUTELY ILL	FACIES	RICKETS	ANEMIA	EDEMA	OTITIS MEDIA	RHINITIS	PHARYNGITIS	TONSILLITIS	PNEUMONIA	ABDOMEN	ADENITIS	IRRITATED GENITALS
P. M.	pos.	anxiety	.....	.....	.....	pos.	.....	.....	pos.	lobar	.....	.....	.....
E. K.	.....	.....	.....	.....	.....	pos.	.....	pos.	pos.	.....	.....	pos.	.....
M. P.	pos.	.....	.....	.....	.....	.....	pos.	pos.	pos.	.....	.....	pos.	.....
V. L.	.....	.....	pos.	.....	.....	.....	.....	pos.	.....	.....	.....	.....	.....
S. S.	.....	excited	.....	.....	.....	.....	pos.	.....	pos.	.....	.....	.....	.....
F. G.	pos.	apathy	.....	.....	.....	.....	.....	pos.	pos.	.....	.....	pos.	.....
F. G.	pos.	.....	.....	.....	.....	.....	.....	pos.	pos.	.....	.....	pos.	.....
B. H.	pos.	.....	pos.	pos.	.....	.....	.....	.....	pos.	.....	distended, liver and spleen palpable	.....	.....
J. A.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
W. P.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	pos.
A. G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
I. D.	.....	.....	.....	pos.	.....	.....	.....	.....	.....	.....	.....	pos.	.....
C. P.	.....	.....	pos.	pos.	pos.	.....	.....	.....	.....	.....	.....	.....	.....

of pyuria. Catheterized specimens were obtained from female patients. Urinalyses showed for the most part clear, acid urines of normal specific gravity with the faintest possible trace to a heavy trace of albumin, and in uncentrifuged specimens four to one thousand pus cells per high power microscopic fields, usually singly, but occasionally in clumps of one to four cells. In uncentrifuged specimens of normal infants or children only an occasional pus cell was observed to high power fields. There appeared to be no definite or fixed relation between the qualitative estimation of albumin and the number of pus cells. It was found that centrifuged specimens contained about eight to ten times more pus cells than uncentrifuged urine.

TABLE 3.—WHITE BLOOD CELL COUNTS

PATIENT	LEUCOCYTES	POLYS.	LYMPHOCYTES
P. M.	8,200–20,400	56–90%	10–44%
E. K.	14,000–29,200	58–78	22–42
M. P.	20,800	60	40
V. L.	20,000	73	27
S. S.	8,600	34	66
F. G.	9,800–15,400	61–75	25–39
F. G.	8,400	56	44
B. H.	40,000	80	20
J. A.	10,200–23,600	57–60	40–43
W. P.	15,000–17,500	70–89	11–30
A. G.	31,200	51	49
I. D.	9,000	80	20
C. P.	4,600–17,800	30–70	30–70

White blood counts in the majority of cases showed a leukocytosis varying from twelve to eighteen thousand cells in uncomplicated cases. The differential counts showed 50 to 70 per cent of polymorphonuclears and 30 to 50 per cent of lymphocytes.

Blood chemistry revealed a slightl y high non-protein nitrogen (32-53 mgs.) in six cases, a slightly increased uric acid (4-8 mgs.) in six cases and a low cell volume (15-33 per cent) in all but two cases. Acetone was greatly increased in the majority of cases.

One patient had a positive blood culture (staphylococcus) while four patients' urine on culture showed an organism having the characteristic of the colon bacillus. Helmholz[7] found sterile cultures in one-third to one-half of normal infants' urine. He[8] also found that the growth of the colon bacillus apparently is the result of a favorable media produced by the lowering of the resistance of the individual rather than by a specific tendency on the part of the microorganisms (staphylococcus or streptococcus) found in the upper respiratory tract, to localize in the kidney and prepare the soil for the colon bacillus.

Of three patients cystoscoped, all showed involvement of one ureteral orifice. In one case, a female age nine months, the smallest ureteral catheter (number 4 F.) could not be passed into the ureteral opening. Another patient, a female age six years, showed an enlarged ureter on the right side and many pus cells in a specimen from that side. The third child's ureters were normal. In the first two cases there was a delay in the appearance and the

TABLE 4.—BLOOD CHEMISTRY

PATIENT	N. P. N.	URIC ACID	CHLORIDES	CELL. VOL.	CO_2	SUGAR	ACETONE	MISCELLANEOUS
P. M.								
E. K.	24.0	1.0	550	35.0				
M. P.	27.0	2.0	550	33.0				Ph. 7.8
M. P.	38.0	2.3	527	34.0	61.4	96.0	0	
M. P.		6.7				57.0		
M. P.	36.0	6.7	386		84.4		plus 4	
M. P.			WB. 374					
V. L.								
S. S.								
F. G.		2.7	527	29.0	51.0	97.0	plus 2	
F. G.								
B. H.		1.0	585	19.0				Ca. 10.1; Plas Prot. 8.2; Vandenberg: direct, neg. and indirect, ft. pos.
J. A.	34.0	2.0	550	33.0	39.5	85.0	plus 1	Phos. 4.7
W. P.	30.0	4.0	562	25.0	35.7		plus 2	Phos. 3.45
A. G.	53.5	8.0	608		43.3		0	Creatine 1.8
A. G.	47.0	7.0	550		44.3	114.0	plus 1	Ca. 7.3; Phos. 2.9
I. D.								
C. P.	32.0	6.1	632	15.5		87.0	plus 2	Serum Prot. 5.4; Cholesterin 83

concentration of indigo-carmine, while in the other case a normal result was obtained.

X-ray examinaton in all cases was not helpful in establishing the diagnosis or the source of the infection, but in two cases that occurred about a year before this study was attempted, stones were diagnosed solely by the X-ray.

Pyuria is often spoken of as a self-limiting disease. Two of the cases in this series cleared up before treatment could have possibly had time to act, but the majority were very resistant to medical treatment. The primary types of pyuria observed were in four cases diagnosed solely on the routine urinalysis. One patient, a female infant of five months, was very resistant to treatment and developed convulsions from an apparent alkalosis which was probably the result of large doses of alkalis over a long period of time. That infant had a persistently high temperature and large number of pus cells in the urine despite a continued alkalinity of the urine. She was admitted to Bellevue Hospital on October 6, 1925, on account of intermittent fever, a cough, a cold and vomiting. These symptoms extended over a period of seven days. The family history was negative and the patient's past history was likewise negative except for a mild diarrhea three weeks previously. On examination the infant was found to have an inflammation of the tonsils and nasopharynx and moderately enlarged anterior cervical glands. The temperature on admission was 100.2 F. per rectum. Laboratory findings showed 14,000 leukocytes with 78 per cent polymorphonuclears and 20-30 pus cells per high power microscopic field in an uncentrifuged specimen of urine. Alkaline therapy consisting of sodium citrate grains 30-60 with sodium bicarbonate grains 30-180 was given for eleven days, then urotropin grains 12 and an equal amount of acid sodium phosphate were used for five days after which time sodium citrate grains 80 and sodium bicarbonate drams 4 were again administered until convulsions occurred on November 5th. In spite of all treatment, the urine continued to be loaded with pus cells and its reaction was acid the majority of the time. The temperature remained high with very little remission. Blood chemistry showed a non-protein-nitrogen of 27-38 mgs., uric acid of 2.0—6.7 mgs., a CO_2 of 61-84 per cent, and on November 5th, four plus acetone. On November 4th, the infant became toxic with development of bronchopneumonia and on the next day a convulsion was observed. The convulsion recurred November 6th, the date of the infant's death.

The majority of the cases ran intermittent types of temperatures with daily remissions. and in two cases only was a sudden drop to normal seen; however, after the urine had been alkaline for severel days the temperatures were lowered temporarily. Most of the patients appeared to be more cheerful and playful after the urine had become alkaline.

Treatment

Diet: Children were first given a liquid diet for three to five days, after which time a soft diet was given then several days later a general diet was begun. Infants' formulas were diluted one-fourth to one-third as long as their temperatures remained high. After there was a lowering of temperature of after much loss in weight was observed, they were fed on more concentrated formulas and those over six months were given cereals, purees, soups, vegetables and the other usual infant foods.

Rest: The older children were kept in bed as long as their urine showed evidence of much pus or their temperature remained higher than 100 F. per rectum.

Fluids: In all cases fluids were forced as much as possible and occasionally hypodermoclyses were given.

Medication: The alkalis were the drugs of choice and were used first in the majority of cases; they consisted of sodium and potassium citrate and sodium bicarbonate. The usual dose of sodium citrate was gains 10-40 (3-8 times daily); potassium citrate grains 5-15 (3-6 times daily); and sodium bicarbonate grains 10-40 (3-8 times per day). The largest daily dose of each was sodium citrate drams 4; potassium

Table 5.—Urinary Drugs
A. Alkalis

Patient	Sodium Bicarbonate				Sodium Citrate			
	Dose in Grains	Largest Dose	Days Used	Amount Used	Dose in Grains	Largest Dose	Days Used	Amount Used
P. M.	20–30 (6)	30 (6)	45	Oz. 14.6	15 (6)	15 (6)	9	Oz. 1.1
E. K.	30 (6)	30 (6)	17	Oz. 6.36				
M. P.	10–30 (3-8)	30 (8)	26	Oz. 8.75	10 (3-8)	10 (8)	11	Oz. 1.2
V. L.	20 (12)	20 (12)	8	Oz. 4.0				
S. S.	20 (6)	20 (6)	3	Dr. 6.0				
F. G.	20–40 (6)	40 (6)	26	Oz. 10.36	20–40 (6)	40 (6)	7	Oz. 3.75
F. G.								
B. H.	20 (6-8)	20 (8)	10	Oz. 3.25	5–10 (6-8)	10 (8)	23	Oz. 3.05
J. A.	10–30 (6)	30 (6)	40	Oz. 11.5	10 (6)	10 (6)	8	Oz. 1.0
W. P.	10–20 (3-6)	20 (6)	9	Oz. 1.6				
A. G.	15–20 (6)	20 (6)	7	Oz. 1.6				
I. D.								
C. P.	20 (3-6)	20 (6)	2	Dr. 3.0				

NOTE—Figures in parenthesis after dose in grains indicate number of times per day the drug was given.

Table 5.—Urinary Drugs
A. Alkalis

Patient	Potassium Citrate				Potassium Acetate			
	Dose in Grains	Largest Dose	Days Used	Amount Used	Dose in Grains	Largest Dose	Days Used	Amount Used
P. M.	5–15 (6)	15 (6)	15	Oz. 1.5				
E. K.	10 (6)	10 (6)	1	Dr. 1.0				
M. P.	10 (3)	10 (3)	3	Dr. 3.1				
V. L.								
S. S.								
F. G.								
F. G.								
B. H.								
J. A.	10 (6)	10 (6)	29	Oz. 3.6				
W. P.	10 (3-6)	10 (6)	9	Oz. 1.0				
A. G.								
I. D.					5 (3)	5 (3)	7	Dr. 1.75
C. P.								

TABLE 5.—URINARY DRUGS
B. ANTISEPTICS

PATIENT	DOSE IN GRAINS	LARGEST DOSE	DAYS USED	AMOUNT USED	DRUG USED
P. M.	.....	.....	.....	.....	.....
E. K.	2-10(4-6)	10 (4)	7	Dr. 2.3	Urotropin
	2-10(4-6)	10 (4)	7	Dr. 2.3	Acid Sod. Phos.
	1 (3)	1 (3)	5	Gr. 15	Methyl. Blue
M. P.	2 (6)	2 (6)	6	Dr. 1.1	Urotropin
	2 (6)	2 (6)	6	Dr. 1.1	Acid Sod. Phos.
V. L.	.....	.....	.....	.....	.....
S. S.	.....	.....	.....	.....	.....
F. G.	.....	.....	.....	.....	.....
F. G.	.....	.....	.....	.....	.....
B. H.	2 (3)	2 (3)	16	Dr. 1.6	Salol.
J. A.	2 (3)	2 (3)	3	Gr. 18	Urotropin.
	5 (3)	5 (3)	3	Gr. 45	Acid Sod. Phos.
	0.5 (3)	0.5 (3)	7	Gr. 10.5	Methyl. Blue
W. P.	2 (3)	2 (3)	14	Dr. 1.3	Urotropin.
	5 (3)	5 (3)	14	Dr. 3.75	Acid Sod. Phos.
A. G.	.....	.....	.....	.....	.....
I. D.	.....	.....	.....	.....	.....
C. P.	.....	.....	.....	.....	.....

citrate grains 80; and sodium bicarbonate drams 4, while the largest total dose was sodium citrate ounces 3 (for twenty-three days); potassium citrate ounces 3.5 (for twenty-nine days); and sodium bicarbonate ounces 14.5 (for forty-five days). Patients were kept on alkali therapy till improved or until their urine had been alkaline for one to two weeks. In the majority of cases it required three to six days to alkalinize the urine, and even after alkaline for three to fifteen days, no effect was frequently observed on the number of pus cells. Temperatures were brought to normal in one-half of the cases and remained thereabout, but no effect was noted in one-third of the cases. It required drams 4.5-13 of sodium citrate (for 6-11 days); drams 4-16 of potassium citrate (for 5-10 days); and ounces 0.5-5.4 of sodium bicarbonate (for 5-12 days) to render the urine alkaline, but to keep it so the majority of the time, the following amounts were used, sodium citrate grains 80-90; potassium citrate grains 30-60; and sodium bicarbonate drams 3-4. The two citrates were used at separate times and as a rule grains 5-20 of each, plus 10-40 grains of sodium bicarbonate were administered three to eight times daily. The urine of one case never became alkaline although drams 1.5-2.0 of sodium bicarbonate was given daily for a period of seven days. When difficulty was experienced in keeping the urine alkaline, it was found that the administration of the alkali throughout the entire twenty-four hours usually gave the desired result. In those cases that responded poorly to alkali therapy, urotropin grains 2-10 (3-6 times daily) plus an equal amount of acid sodium phosphate was given for 3-14 days. Apparently that urinary antiseptic was unsuccessful. No attempt was made to determine the strength of the formaldehyde present in the urine or to determine the hydrogen-ion concentration. Helmholz[9] found that the formaldehyde was never present in a concentration

TABLE 6.—EFFECT OF ALKALI THERAPY ON TEMPERATURE AND URINE

PATIENT	DAYS IN HOSPITAL	TEMPERATURE VARIATION	TEMPERATURE		NUMBER OF DAYS BEFORE URINE CLEARED UP
			High	Low	
P. M.	79	High for 1½ mos. then normal.	104.2	98.0	37 (but pus cells returned after alkalis were withdrawn.)
E. K.	28	Normal as long as urine was alk.	103.5	98.0	always some pus cells.
M. P.	31	Temporarily normal at first but high majority time.	106.0	98.4	always some pus cells.
V. L.	20	Temp. practically normal all time but urine was acid.	102.8	98.0	6 (but pus cells returned once for 3 days then disappeared again).
S. S.	6	Normal before use of alkalis and remained normal.	102.8	98.0	3 (patient left hospital against advice of visiting physicians).
F. G.	36	Normal after 1-2 days.	105.5	98.0	always some pus cells.
F. G.	8	No alkalis used but temp. became and remained normal after 1 day.	104.0	98.0	3 (pus cells returned only once).
B. H.	30	No effect.	104.5	99.5	always some pus cells.
J. A.	70	Normal after many weeks then urine was not constantly alkaline.	105.5	96.0	always some pus cells.
W. P.	27	Alkalis had no effect.	106.0	95.0	always some pus cells.
A. G.	8	Alkalis had no effect.	106.0	98.4	always some pus cells.
I. D.	12	Normal all time.	100.4	97.2	2 (but pus cells returned then cleared up after 12 days).
C. P.	9	Alkalis had no effect.	106.0	96.4	always some pus cells.

TABLE 7.—ALKALIS USED TO RENDER AND TO KEEP URINE ALKALINE

	TOTAL AMOUNT TO RENDER URINE ALKALINE			DAILY DOSE TO KEEP URINE ALKALINE		
PATIENT	POT. CIT.	SOD. CIT.	SOD. BICARB.	POT. CIT.	SOD. CIT.	SOD. BICARB.
P. M.	.....	.....	Oz. 4.5 (12)	Dr. 1.0	Dr. 1.5	Dr. 3.0
E. K.	.....	.....	Oz. 1.8 (5)	.....	.....	Dr. 3.0
M. P.	Dr. 0.5 (1)	Dr. 4.5 (6)	Oz. 2.5 (11)	.....	Dr. 1.3	Dr. 4.0
V. L.	.....	.....	Oz. 1.5 (3)	.....	.....	.....
S. S.	.....	.....	Oz. 0.7 (3)	Dr. 1.0	.....	Dr. 2.0
F. G.	Oz. 2.0 (7)	.....	.....	.....	.....	Dr. 3.0
F. G.	.....	.....	.....	.....	.....	.....
B. H.	.....	Oz. 1.6 (11)	Oz. 1.3 (4)	.....	.....	.....
J. A.	Oz. 1.2 (10)	.....	Oz. 1.2 (10)	Dr. 1.0	.....	Dr. 3.0
W. P.	Oz. 0.5 (5)	.....	Oz. 0.5 (5)	.....	.....	.....
A. G.*	.....	.....	Oz. 1.6 (7)	.....	.....	.....
I. D.**	.....	.....	.....	.....	.....	.....
C. P.*	.....	.....	Oz. 0.4 (2)	.....	.....	.....

*Urine did not become alkaline.
**Potassium Acetate Dr. 1.7 (3) used but urine was alkaline before the drug was administered. Urine remained alkaline on Gr. 15 per day.
Figures in parenthesis denote the days the drug was given.
Figures underlined indicate the dose was not quite sufficient to keep the urine alkaline.

greater than 1:20,000 and that it usually was less than 1:100,000. Shohl and Deming,[10] Burnam[11] and others have insisted that in order to get the desired results with urotropin, it was necessary for the formaldehyde to be present in a concentration of 1:20,000 or 1:30,000. Helmhloz[9] has found that if the acidity of the urine is kept between Ph. 4.6-5.0, the growth of bacteria is inhibited. He also noted that a more beneficial effect results when the urine is quickly changed from alkaline to acid than from acid to alkaline. The Ph. 4.6-5.0 as observed by Helmholz seemed to favor the formation of formaldehyde from urotropin. The large doses of urtropin (grams 4-6 daily) plus calcium or ammonium chloride (grams 4-12 daily) for pyuria as recommended by Helmholz[9] were not used. He only recommends the large doses of those drugs in chronic pyuria and then only when large quantities of water are taken, for when it is difficult to get an infant to take water in large amounts, hematuria results.

Besides urotropin, methylene blue grain ½ three times daily for 5-7 days had no beneficial effect on the pus cells or the temperature in two instances in which it was employed. Another urinary antiseptic, hexylresorcinol, was used in dram doses three times daily for two patients, but since it gave rise to vomiting each time it was used, the drug was discontinued before any definite information could be obtained concerning its value. Another patient was given salol grains 6 daily for sixteen days but no beneficial effect was noted from the use of salol.

In three cases transfusion of whole blood was given, the usual 10 cc. whole blood per pound of body weight being used. One patient received two transfusions and developed erythema multiforme following the first injection and all three had high temperatures following the transfusions. One infant lived three days following the only transfusion, another lived two days while the third child passed out on the second day after its second transfusion. In all instances one of the parents was the donor and each time the donor's and recipient's blood matched.

Intestinal derangements (diarrhea and constipation) had little influence on the temperature but in five cases that had such upsets, an elevation of temperature resulted.

Five of the thirteen cases died. Of that number three were males and two females, all under two years of age. Two patients were transferred unimproved to a contagious hospital on account of measles. Of the remainder, two were discharged clinically well, and four definitely improved. All patients that left the hospital were advised to go to the out-patient department at weekly to monthly intervals for observation since pyuria is known to recur so frequently.

SUMMARY AND COMMENT

The frequency of pyuria appears less than some writers claim, while the ratio of females

to males is identical with that observed by the majority, namely, four female cases to one male case. The disposition of the three male infants in this small series of cases, reveals the fact that pyuria in very young male infants is a very severe infection. The use of the word pyelitis is a misnomer and in its place pyuria should be employed until a better term

Table 8.—Disposition of Cases

Patient	Age	Sex	Outcome
P. M.	6 yrs.	F.	improved
E. K.	19 mos.	F.	improved
M. P.	5 mos.	F.	died
V. L.	1 yr.	F.	improved
S. S.	8 yrs.	F.	improved
F. G.	3 yrs.	F.	unimproved (transferred to another hospital account measles)
F. G.	3 yrs.	F.	clinically well
B. H.	18 mos.	F.	died (transfused)
J. A.	9 mos.	F.	unimproved (transferred to another hospital account of measles)
W. P.	4 mos.	M.	died (tranfused)
A. G.	5 mos.	M.	died
I. D.	9 yrs.	F.	clinically well
C. P.	6 mos.	M.	died (transfused)

can be agreed upon. Sole reliance for diagnosis is the microscopic urinary examination, for the bizarre symptoms and the physical findings (other than foci of infections in secondary cases) are of little help. The X-ray may be the only means of diagnosing stones or of locating the source of the pus. If pyuria is the result of a suppurative nephritis as Chown[4] and Schloss[5] believe, one would naturally expect to find some evidence of nitrogen retention. The blood chemistry findings in this series of cases and in eleven cases of pyuria studied by Wilcox and Lyttle[12] showed nitrogen retention. Wilcox and Lyttle believe the retention in pyuria and also in the majority of acute infections is due to a simple impairment or depression of the kidney function, though frequently they were unable to rule out the possibility of nephritis. The pathology of pyuria is still to be established beyond question. White blood counts per se are of little material use in helping one to arrive at the diagnosis. Red blood cell counts and cell volume figures point to a secondary anemia in the cases in which such tests were made. The treatment as yet has not proven as satisfactory as hoped for, with alkali therapy still the treatment of choice, unless vaccines or the large doses of urotropin with calcium or ammonium chloride as advocated by Helmholz[9] prove more efficient. All chronic cases that fail to respond to medical treatment should have the advantage of cystoscopic examination and treatment.

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DISCUSSION OF PAPERS OF DRS. DODSON, KEYSER, NEFF AND MCGEE.

DR. HERBERT C. JONES, Petersburg:—I think the interest that has been shown and the attention that has been given these papers intimates the high regard with which they have been received. Dr. Dodson's paper was especially interesting to me in the fact that his third case gave a history of having been sick over two years. I personally saw this case, though I did not see him in his original illness. He had an attack of hematuria that lasted two days, then went two years and thought himself well. Gentlemen, if that man had been recommended for cystoscopy in his original illness the chances are that he would today be well and happy; as it is, the outlook is bad. I think if a patient has hematuria that patient should be investigated at once. This idea is brought out by Casper in an article reporting 242 cases of cystoscopies after early hematuria. In all but three cases he found bladder tumors. Of course, the chances then of permanent relief were very good. Another important point is that nine out of ten bladder tumors in the beginning are benign. The big thing, as I see it, is an early diagnosis, and that can only be done if the doctors will recommend them.

Dr. Dodson spoke in case one about incrusted cystitis. He made the statement that he was able to get the urine acid. I should like to have him tell us how he did that. That has been a problem with me on one or two occasions.

I enjoyed Dr. Keyser's paper very much. I heard Dr. Hunner talk in New York very recently, when he was expressing the idea that it was not necessary to have dilatation above the supposed stricture, to make a diagnosis of ureteral stricture. If you go out to Mayo's you will find that is absolutely contrary to their line of thought. Dr. Keyser has acknowledged that ureteral stricture does exist and that we should make dilatation when we suspect a stricture. I think we should be very cautious in making a diagnosis of ureteral stricture, because it is likely to bring the cystoscopist into disrepute if the diagnosis is not well founded.

DR. CHAS. E. CONRAD, Harrisonburg, discussing Dr. Neff's paper: I think we are to be congratulated on having such a splendid paper presented to us on a subject in which the general practitioner and pediatrician are so interested.

Pyuria is a condition which we see often, and many times get such poor results after careful treatment. It is these cases we treat for months that should be referred to the urologist. I feel they should be treated for at least six months medically unless there is special reason to refer earlier.

Then another important item is to have a competent urologist who has worked with children. Urologic problems in infancy and early childhood resembles similar problems in adult life, but the tissues are much more easily traumatized and trauma may lead to a general septicemia. When carefully done, this should not stand in the way of a complete urological examination. Case 4 referred to in Dr. Neff's paper I treated for ten months, using alkalies, forced fluid and large doses of hexamethylene, but did not get any results. After being under my care five months, I advised the father of the child to take him to Dr. Neff, but was unable to persuade him to go until ten months after I first saw him, and you can see from his report that good results would never have been obtained.

I feel some of these cases of chronic pyelitis, especially with severe anemia, should be given the benefit of transfusion, as I have seen several severe cases recover from the anemia, and also the pyelitis after transfusion.

In regard to cases like case 8, Helmholz and Milliken express the theory that infection of the nose and throat lowers the resistance of the patient to such an extent that the colon bacillus is permitted to acquire a foothold in the urinary passages when it sets up an inflammatory reaction and that the actual bacteria of the primary infection in the upper tract does not actively cause the secondary pyelitis, since the colon bacillus is almost invariably found in the urine. As you will note from the paper under discussion, there are certain types of kidney infections which can only be properly diagnosed by careful and complete urologic study, it becomes necessary to refer such cases to a really competent urologist.

Again I wish to congratulate Dr. Neff on his presentation of this interesting and perplexing subject.

DR. W. B. MCILWAINE, Petersburg: In discussing Dr. McGee's paper there are one or two very striking statements which, as he says, have not been thought heretofore. It is remarkable in Bellevue Hospital that in something over one thousand cases they had only thirteen cases of what we would call pyelitis. In almost any active practice you see at least fifty in a year, as I have discussed with many men, so the striking number of thirteen out of over a thousand cases admitted to Bellevue in over nine months is remarkable. Perhaps we are not diagnosing cases correctly, but we diagnose them in the same way—that is, by pus in the urine and so many pus cells in a certain area under a high power microscope. Why the difference, I do not know, but I was astounded when I saw they had only thirteen cases.

Another interesting fact is that out of the thirteen cases five died. I have seen only one man who had a case of pyelitis in a child to die in his private practice. I always tell the mother I have never seen a case of pyelitis die. When you consider that five out of thirteen in Bellevue Hospital died, there is something remarkably funny about the whole situation. I admit that we probably do not go into our cases quite as carefully, but we certainly diagnose pyelitis and certainly have a high percentage of pyelitis in private practice. Probably it is accounted for by the fact that so many cases of pyelitis do not go to Bellevue Hospital or any other hospital; it is only the very severest cases that get there. But these facts are striking, and I think that we should ponder them.

In infants I think probably lots of cases of pyelitis so-called are probably cystitis. I think those cases with a great deal of pain, straining, etc., probably have cystitis rather than pyelitis. Yet Dr. Neff asked, in discussing this with me, why they have temperature. We seldom get a temperature from cystitis.

Dr. McGee says the men are beginning to call it a purulent nephritis. That is a little new to me. I do not know how you would diagnose a nephritis if you have none of the cardinal urinary findings of a nephritis. Nephritis, as you and I know, is diagnosed by other things than pus in the urine. If you are going to call your pyelitis purulent nephritis, how can you do it when there are no casts in the urine? It is a very interesting problem.

DR. A. I. DODSON, Richmond, discussing Dr. McGee's paper: Dr. McGee has presented a very interesting and timely paper. I believe that urinary

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tract infections in infants and children have frequently been overlooked in the past and I am glad to see that the subject is receiving more attention. I believe that the method of determining the presence of infection as outlined by Dr. McGee will permit a number of cases to get by unrecognized; four cells to the high powered field in uncentrifuged urine is too strict a requirement, particularly if the child is fretful, suffers from gastro-intestinal disturbance, or has a fever.

If the infection is prolonged or has a tendency to recur, cystoscopy and irrigation of the kidney pelves is indicated. During the past year I have treated four children for prolonged and recurrent pyuria with complete relief in all four. Children stand cystoscopic treatments well and the modern instruments made especially for children permit us to carry out examinations and treatments with the same ease and precision as in the case of adults.

Just one word in closing the discussion of my paper on tumors of the bladder. I wanted to stress the fact that tumors of the bladder metastasize very late as a rule and a majority of them bleed early. The larger percentage of them are relatively benign to begin with and apparently grow rather slowly in most cases, as evidenced by the fact that in a great many instances you get a history of hematuria over a long period of time. During this last year I saw four cases that had passed beyond any help whatever, due to the fact that the appearance of blood in the urine had not aroused sufficient interest on the part of the patient or his physician to demand a thorough investigation.

Dr. L. D. Keyser, Roanoke, closing the discussion on his part: I have very little to add to what has been said except to emphasize the importance of cystoscopy in childhood. I feel keenly that in my urologic work and in that of my colleagues, we see too few children cystoscoped. Transient pyuria, if not recurrent, may be well handled medically, but unless the urinary findings become normal very, very quickly on medical treatment, the indications for cystoscopic investigation of the most complete type, are present. The pediatrist objects to the anesthetic, the urethral trauma, and the possible cystoscopic reaction. With the new instruments of the Braasch or Butterfield types, which are adapted to the child's urethra, trauma except in very small infants, may be avoided and the cystoscopic reaction as a rule is even less than that noted in adults. The occurrence of pyuria in children can doubtless be explained on the same pathological basis as it is in adults. As regards the incidence of ureteral stricture in children, I am not prepared to add to the discussion. However, from the number of hydronephroses and hydroureters that are being reported in children, I am inclined to believe that the occurrence of the condition is frequent, and autopsy findings tend to bear out the truth of this impression.

Dr. J. H. Neff, University, discussing paper of Dr. Keyser: I am in essential agreement with the views expressed in Dr. Keyser's interesting paper. With us ureteral stricture has been the most frequent cause of ureteral obstruction, outnumbering calculi two to one. Its symptoms are only too often confusing and thus productive, particularly on the right side, of incorrect diagnoses. Such facts make discussion of the subject always timely. The medical profession owes a very real debt to Dr. Hunner for the patience and insistence with which he has directed attention to ureteral strictures.

In establishing the diagnoses of stricture, I attach much importance to the reproduction by instrumentation of the patient's pain of complaint and to the securing of the characteristic hang, or hangs, by means of the bulbed catheter. Pyelo-ureterograms are frequently helpful by demonstrating dilatation. Yet I see a good many patients for whom relief is obtained by dilating a stricture even though ureteral dilatation above it could not be shown. I have little doubt that a fair number of cases diagnosed ureteral stricture actually have localized ureteral spasm, especially those who are relieved of pain so promptly when the bulb has hung only slightly and the ureter had a normal calibre above the point of hang.

I have undertaken renal sympathectomy three times during the past year. In two instances the results to date have been excellent. In the third case the renal vein was so damaged during the dissection that a nephrectomy had to be done. Two of these cases seemed to have very definite ureteral strictures but failed to respond to repeated thorough dilatation.

Dr. W. A. McGee, Richmond, closing the discussion on his part: Perhaps we diagnose pyuria too frequently by unexplained fever. The majority of cases of unexplained fever are due to pneumonia or otitis media. Perhaps counting four pus cells to an uncentrifuged microscopic field is rather high. With reference to the mortality, these cases were from poor families and treatment had been delayed. The children were in very poor condition when brought in. Practically no one has found any large number of inflamed kidney pelves, so certainly the diagnosis ought not to be pyelitis.

In reference to referring a case to a urologist after six months, I think it ought to be sooner, as Dr. Neff says.

CERTAIN PROBLEMS RELATING TO DISEASE OF THE THYROID GLAND.

By R. L. PAYNE, M. D., F. A. C. S., Norfolk, Va.

When the medical man is presented with a case of thyroid disease, the problems that are of first concern are those relating to the heart and the nervous system. I think the general practitioner who sees an occasional case of goitre, in the routine of his daily work, is first more anxious over the patient's cardiac condition, and it might be of interest to briefly consider the heart phase in thyroid disease.

Hyperthyroidism is generally accompanied by a marked increase of metabolic processes, which simply means that the rate of consumption of food and body tissues is definitely increased, and this in turn calls for a greater supply of oxygen by the lungs. Hence, tachycardia must necessarily be the first heart phase in hyperthyroidism, for, if the lungs must supply more oxygen, then the burden of the heart must be increased in its effort to transport this needed oxygen to the body tissues. Adventitous sounds are rarely present in the beginning, except in those cases having cardiac

dysfunction or disease prior to the onset of hyperthyroidism, but later on there is often present a systolic murmur which is usually functional and soon disappears if operation is done early in the disease. This clearly means that the heart mechanism is not primarily attacked by the toxemia of hyperthyroidism and that these cases can be restored to normal by prompt surgical removal of the over-productive gland tissue.

Many cases, however, with increased metabolism exist for many years without relief, and then the heart phase progresses to one of disturbed rhythm and this irregularity is, in most cases, that of auricular fibrillation. Auricular fibrillation is often of serious portent, and the general practitioner should be acquainted with the fact that this heart phase is a late development in hyperthyroidism and occurs usually in cases that have had a mild type of toxemia extending over a long period of time. Therefore, the insidious, mild types of thyroid disease are potentially the hardest on the heart, and usually the advanced cardiac disturbance is the first part of the syndrome that attracts the medical man's attention. These are not the hyperplastic or exophthalmic cases, for in this type the onset of symptoms is sudden, the progress rapid and most of our cases of this variety are brought in for surgical relief within the first year of the disease. On the other hand, the adenomatous types and those with a low grade of thyroiditis associated with increased metabolism are the treacherous cases for which we should always be on the watch. They develop slowly over a period of several years, the classical symptoms are usually wanting, and often the cardiac disturbances are the first signs that cast suspicion on the true cause of the patient's many and varied complaints.

Plummer states: "In the exophthalmic cases symptoms develop rapidly and more than half of the cases of this type seen at the Mayo Clinic came in the first year after the onset of symptoms in which the nervous system is mainly involved. On the other hand, in the adenomatous cases the toxic symptoms develop after an average lapse of fourteen years and cardiac damage then dominated the picture.

Goodall says: "Long continued mild grades of thyrotoxicosis caused more cardiac damage than a more intense thyroid intoxication for a much shorter period." At this time I wish to emphasize the point which we have observed that some adenomas of the thyroid produce cardiac disturbances before there occurs any increase in metabolism readings and these cases should be carefully and repeatedly metabolized. I recall one recent case that showed a marked tachycardia and mild tremor with associated nervous instability, yet two metabolism estimations showed a normal rate. One month later this case showed a metabolism of plus 45 and operative intervention restored this patient to health.

It is highly important that proper treatment be given these cases before serious and permanent heart injury has taken place, and, therefore, repeated heart examinations should be made in every goitre whether or not toxic symptoms or hyperthyroidism, as shown by increased metabolism, are present.

It is generally conceded from results obtained in many surgical clinics, that in about 60 per cent of these irregular heart cases the action is restored to normal by the removal of a proper amount of the over-productive thyroid gland. In those cases in which the heart action does not become regular after operation, it is often possible to improve the rhythm by the proper administration of quinidin and digitalis. However, if the heart has been permanently damaged, if there was already heart disease before the onset of hyperthyroidism or the condition is complicated by a marked arteriosclerosis, then operation may only arrest the progressive heart changes and restoration to normal cannot be expected.

Iodine

The role iodine has assumed in the treatment for goitre has now become one of our distinct problems. For many years this drug has been vaguely recommended and a goodly number of our profession feel that the use of iodine is good treatment for some or all forms of goitre. Except as a pre-operative measure, I do not think iodine should ever be given a thyroid case which shows any symptoms of hyperthyroidism. There are but two type of goitre which can be safely treated medically by iodine, and I here refer to the colloid enlargements of adolescence and of pregnancy. This statement might be put differently; I am fairly well convinced that all goitres are surgical problems except the colloid goitres of adolescence and pregnancy. I recently heard an excellent internist forcibly express my sentiments by saying that no goitre cases over

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eighteen years of age should be given iodine except as a pre-operative measure.

The difficulty in the iodine problems lies in the fact that men who believe in this treatment are uncertain as to the varieties of goitre in which it is helpful. The next most natural mistake, therefore, is to give iodine to all goitres, and some practitioners follow the practice of continuing the drug for indefinite periods. I have studied very carefully the results of iodine in my thyroid surgery during the past four years and believe, in the light of our present knowledge, that it should only be used in toxic goitres as a pre-operative measure, and then only after admission to the hospital where the patient's daily condition can be checked and frequent metabolism readings taken. When iodine is given indiscriminately and for indefinite periods, then its value as a pre-operative measure is lost to both the patient and surgeon and often the possible successful surgical issue is materially minimized.

While we can often predict good effects from iodine in certain surgical cases, yet in most of our surgical problems we cannot foretell its efficacy until a trial has been given the drug. Furthermore, it is almost a certainty in our experience that those cases who are not benefited by iodine are usually made worse. This especially is true of the nodular goitres and the hyperplastic types that have small adenomas hidden in their substances. These facts emphasize the importance of hospitalization of all hyperthyroid cases before we resort to iodine for a trial.

The value of iodine as a preventive measure has been well established and every practitioner should be familiar with the necessity of this therapy in children after eleven years of age if there is a deficiency in water or food. However, in this representative gathering I cannot refrain from referring to the ill-advised activities of some public health agencies in their effort to administer iodine indiscriminately to all persons in drinking water and table salt. I believe public health work should be purely educational and intelligent treatment should be left to the family physician. In this one locality I am sure the number of toxic goitres has increased in the past five years and, to my knowledge, some of these have been simple goitres which have suddenly taken on active growth and become acutely toxic through the ill-advised use of iodized salt. I feel that the advertised product of iodized salt is a very harmful agent in our goitre problem and that its sale should be prohibited by the proper authorities.

Again, referring to iodine as a pre-operative measure, I would like to bring out the point that many surgeons believe that good effects can only be produced but one time, and then operation should immediately follow. Some feel that this good effect may be repeated, but the majority concur in the opinion that, if good effects are to be obtained a second time, there must be an intervening period of from three to six months. Finally, after operation for all types of goitre, we are finding iodine of value, and for the past three years have been using it routinely in our convalescent cases.

Dr. Willard Bartlett first called this to my attention and theoretically the drug is given for the same reasons that we give it to children from eleven to sixteen years of age.

The effect is often very gratifying in the extremely toxic condition so frequently seen within the first two or three days following operation. It is a common experience for us to see great post-operative restlessness, high fever, prostration and fast heart action rapidly improve under proper iodine therapy. Until the patient can swallow, we give Lugol's solution by rectum and thereafter by mouth, keeping this up in small doses of three to five drops for six months after operation. By this means we hope to take all work off the residual thyroid tissue, which, in turn, will prevent compensatory hypertrophy with its possible return of symptoms. Since we have followed this method there has not occurred a single case of recurrence following operation and the return to health has apparently seemed more rapid and smooth.

Treatment

The toxemia and systemic effects of hyperthyroidism are due to excessive thyroid hormone with its incomplete molecule of iodine. Briefly, the victim is taking thyroid extract and iodine in quantities sufficient to produce hyperthyroidism.

Does it seem logical to treat this nervous wreck, this overworked and weakened myocardium by bromides, rest cure, diet, digitalis and other medical measures, yet allow the exciting hormone to continue to pour into the victim's circulation from the thyroid laboratory? As Crile has said, would it not be better

to first stop the taking of the toxic drugs by surgical removal of the over-active gland tissue, and then supplement this by some or all of the valuable medical measures so necessary to restore the patient to strength and health? Statistics covering a large series of toxic goitres treated medically are not available but literature is full of the results of these cases surgically treated. My own results and those of many surgeons can, I think, be conservatively stated as follows: 70 per cent recover their strength in about three months, have the average capacity for work or mental activities, and life is really worth living. About 25 per cent are materially improved in every way, are capable of doing a moderate amount of work but always have to guard against over-exertion. The remaining 5 per cent are those who have suffered permanent and irreparable damage to both heart muscle and nervous mechanism, and these are definite invalids.

With these definite and established results, I think we may wisely conclude that none of the conservative measures directed to the relief of hyperthyroidism can in any way approach the efficacy and certainty of surgical treatment as the primary method of arresting the disease, providing the operation is followed by an efficient medical regime of rest and proper drug therapy. As Crile has said; "Surgical treatment, supplemented by a proper medical supervision, not ony conserves life and function but is of economic value also; namely, it is the shortest road to recovery."

Medical Arts Building.

THE CLINICAL SIGNIFICANCE OF HIGH TONE HEARING DEFECTS.*

By M. L. BREITSTEIN, M. D., Baltimore, Maryland.

The clinical purpose of a hearing test is to determine the amount of hearing loss and to localize the affection. Our prognosis will depend upon these two findings. If the hearing loss is not too great and the affection is localized in the conduction apparatus, the defect is regarded as an obstructive deafness, and we feel justified in giving a favorable prognosis. If, on the other hand, we find evidence of a nerve lesion, we feel warranted in assuming that the deafness will become progressive and we are accordingly pessimistic in our prognostication.

*Presented before the Medical and Chirurgical Faculty of Maryland, Otolaryngological Section.

How do we make this very important differential diagnosis? We must necessarily rely largely upon the functional tests of hearing together with the history and the physical examination to thus differentiate obstructive from nervous deafness. It is at once apparent that a proper interpretation of these hearing tests is of the highest importance. The criteria upon which we base our diagnosis and which are regarded almost as otological axioms briefly stated are: (1) Nerve deafness is indicated whenever the higher tones of the musical scale are heard less than the lower tones and especially if the so-called upper tone limit is lowered. (2) Obstructive deafness is indicated whenever the high tones are well heard, but there is a loss of hearing for the lower tones with increasing difficulty as the scale descends; and especially if the so-called lower tone limit is raised. (3) Bone conduction of shortened duration is indicative of nerve deafness. However, if the hearing by air conduction is lowered and the bone conduction is normal or lengthened—actually or relatively—it is taken to denote obstructive deafness. The Weber, Rinné, Schwabach and Gellé tests all involve bone conduction. In this discussion we will consider only the air conduction hearing tests.

Graphically, that is, by audiogram, if the low notes are charted at the left and the high notes at the right, uncomplicated nerve deafness should show a curve sloping downward from left to right; uncomplicated obstructive deafness should show a curve sloping upwards from left to right. Combined nerve and obstructive deafness should show a curve with the right, the center, and the left approximately on a level, that is, sloping little, if any, up or down. These are the orthodox teachings to which otologists have held firmly.

In 1923, Goldstein[1] published an elaborate chart into which chronic catarrhal otitis media, chronic purulent otitis media, otosclerosis, otosclerosis with nerve deafness, peripheral nerve deafness, and central nerve deafness were differentiated and snugly fitted in accordance with the tuning fork hearing tests. This "Table of Functional Tests Corrected," as it was called by the author, followed very closely the well established teachings which have been summarized above. In 1925, Duell[2] made the following statement, "we also know that obstruction of the conducting apparatus does not lower the upper tone limit unless there is fixa-

tion of the stapes in the oval window—when there will be a marked interference with the upper tones as well as with the lower tones."

These publications are fairly characteristic of the then existing attitude of otologists.

There was an enviable calmness in their ability to complacently correlate tuning fork tests and ear pathology. In more recent years, however, there have been evidences of doubt, and at present we approach the interpretation of hearing tests with some degree of uncertainity. In 1921, Emerson[3] made the statement that there is no hearing test which is characteristic for any particular form of middle ear disease. The same author in 1924 made other statements which were decidedly disturbing. He said, for instance, of all the forms of deafness, the so-called nerve deafness was the most amenable to treatment. He reported, furthermore, that lowered bone conduction may exist for years and after treatment, in some cases, be partially restored. It was observed that the conducting apparatus may be impaired by the loss of the drum membrane, malleus and incus with epidermization of the promontory—and yet the hearing may be but little impaired.

Dean and Bunch[4] made a very exhaustive and careful study of the tonal ranges in lesions of the middle ear. They found in an analysis of the clinical charts of 22 cases of acute otitis media—that in every case except one there was either decreased bone conduction, lowering of the upper tone limit by bone conduction (i. e, by 20,000 or more) or a defect in the curve which was suggestive of a lesion of the nerve or end organ. These signs of nerve or end organ involvement appeared very early in the disease. It is their opinion that the lesion of the nerve is not necessarily dependent upon the condition of the middle ear. They found no definite relation between the severity of the middle ear infection and the nerve lesion; for when the middle ear infection was unilateral usually the unaffected ear also presented evidence of nerve involvement. In every case of chronic otorrhea except one there was evidence of a nerve lesion; and contrary to the acute infections, there was an interdependence of the middle ear lesion and that of the nerve. Dean and Bunch regard the following as suggestive of a lesion of the acoustic nerve: Audition for the higher notes is poorer than that for the lower or middle part of the tonal range. If the lower notes of the tonal range up to about 3,000 D. V. are heard normally, and there is a diminution in the audition for the notes in the upper part of the range, this high tone defect is suggestive of a nerve lesion. If, however, there is a uniform diminution in audition for tones throughout the range, this diminution of audition for the higher notes does not indicate a lesion of the nerve or end organ. There would have to be a distinctly greater diminution for the notes in the upper part of the scale as compared with the tone best heard in the lower or middle part to indicate positively a nerve lesion.

There is a very significant paragraph in this article by Dean and Bunch to the effect that frequently the cases of hyperplastic otitis media report improvement in hearing following one kind of treatment or another. *Hearing tests failed to show actual improvement in any case unless the lesion of the nerve or end organ greatly overshadowed the middle ear lesion; the improvement resulted from the treatment of the case either for syphilis, or removal of foci of infection.* (They mention tonsils specifically.)

This would seem to agree with Emerson's claim that so-called nerve deafness is the most amenable to treatment. Also there is an alignment with Emerson by Dean and Bunch and by Duell in their emphasis of the importance of foci of infection. Emerson is the outstanding advocate of the relation of foci of infection to deafness. He believes that chronic deafness is not a steady loss of tone perception, but follows acute exacerbations of a local focus. The deafness is stationary until the next toxic invasion with evidence of the local process always present until extreme old age.

More recently Fowler[5] has reported some experiments which are of great interest. According to Fowler, acoustically there are three factors which control the progress of sound waves through a conducting or transmitting system, such as that of the ear: (1) inertia (weight) which impedes acceleration or change in direction or velocity; (2) elasticity, which impedes displacement; (3) friction which impedes motion or velocity. These three mechanical properties act singly or together in various ways.

If it be assumed that the vibrations of the different parts of the conducting mechanisms take place as usually described in the text books, then it is comparatively simple to pre-

dict the effect upon an audiogram of any simple type of conductive lesion; for example, the weighting of any or all of the parts which would decrease particularly the high frequencies. Obstructive lesions are those which in any way interfere with the normal sound transmission through the middle ear; anything, in other words, which impedes or otherwise modifies this.

Fowler attached a flattened shot weighing 85 mmgm. to the drum over the umbo, and then audiograms were made first of the hearing with the drum mebrane of the ear horizontal and second with the drum in the normal vertical position. An audiogram was also made of the ear without the shot attached to the umbo. Contrary to the expected result the lower tones were little if any affected, while the higher tones were perceptibly lowered. In another experiment, an 85 mmgm. round shot was accidentally attached slightly excentric to the umbo of a normal ear. Audiograms in the horizontal and vertical positions in this case gave most unexpected results. There was a raising of the high frequencies and a lowering of the low frequencies.

These two experiments demonstrate how a small mass in a slightly different location may have a definitely reversed effect upon the same frequencies. They prove that though it be clearly an obstructive lesion, such a lesion may either lower or elevate the low tones and that it may also lower or elevate the high tones. Since the placing of a shot upon the umbo may produce such divergent results, the conclusion is unavoidable that even this artifical "lesion" has changed the mode of motion of the parts of the conducting mechanism so that it differs from the normal. ANY REAL LESION TENDS TO DO THIS AND EARS VARY GREATLY; CONSEQUENTLY, THE SAME CONDUCTIVE LESION IN DIFFERENT EARS MAY CAUSE EXACTLY OPPOSITE EFFECTS UPON THE AUDIOGRAM. It is interesting to note further that in spite of the rather large conductive lesion in these experiments (the shot weighed from 3 or 4 times as much as the malleus), the variations from the normal ear were so very slight that they do not give conclusive data for the differential diagnosis of conductive lesions, at least those confined to the drum membrane or ossicles. In all these experiments the tones above 4,000 were better heard when the pressure of the shot was increased. This is a decided shock to our belief in the theory of obstructive deafness. It would seem from these experiments that, even with simple lesions, the interpretation of changes in audiograms is quite difficult. Moreover, it is shown quite clearly that just because there is some so-called obstructive lesion in the conductive mechanism, it does not necessarily follow that there must be present a lowering of the lower notes out of proportion to the high, or that because there is a lowering of the high tones more than the lower, that this may not be due to the so-called obstructive lesion and not necessarily to a nerve deafness alone.

Clinical observation would seem to support the deductions from these experiments, and I should like to report four cases in confirmation. In all of these cases there was very definite middle ear pathology. Hearing tests were done with a 2A Western Electric Audiometer and the hearing tests showed defects in the high tones as well as in the low tones. Eustachian catheterization was the treatment employed, and the particular point of interest is that in all these cases the improvement, when it occurred, was more marked for the high tones.

CASE REPORTS.

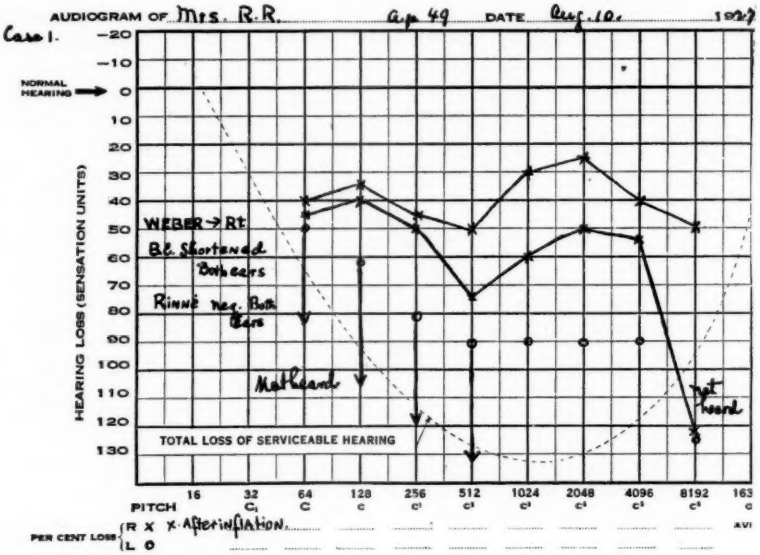
Case No. 1, Mrs. R. R. Age 49.

Patient was first seen on August 10, 1927. She complained of tinnitus and deafness in both ears. The deafness in the left ear came on twenty-five years ago, immediately after typhoid fever. The deafness in the right ear is of thirteen years' duration. The ears have never discharged. The family history is negative for deafness. There have been occasional attacks of vertigo. Recently she has noticed the high tone tinnitus, particularly marked for the right ear.

EXAMINATION:—The nose and throat examination revealed a chronic tonsillitis. Both drums are thickened and retracted. The vestibular tests were normal. For the hearing test see the audiogram. It will be noted that in the left ear, none of the notes from 64 to 512, inclusive, are heard. 1024, 2048, 4096 are heard at 90. 8192 was not heard. The hearing in the right ear was somewhat better. It will be noted that 8192 was not heard on the first examination. Weber was referred to the right. Bone conduction was shortened in both ears. Rinné was negative for both ears. After eustachian catheterization, the audiogram

showed the greatest improvement in the right ear from 512 through 8192; whereas, 8192 could not be heard before treatment, it was heard after catheterization.

the left ear was first noticed eight months ago after a "cold." Tinnitus was very marked immediately after the onset. The tinnitus has improved but the hearing has become steadily

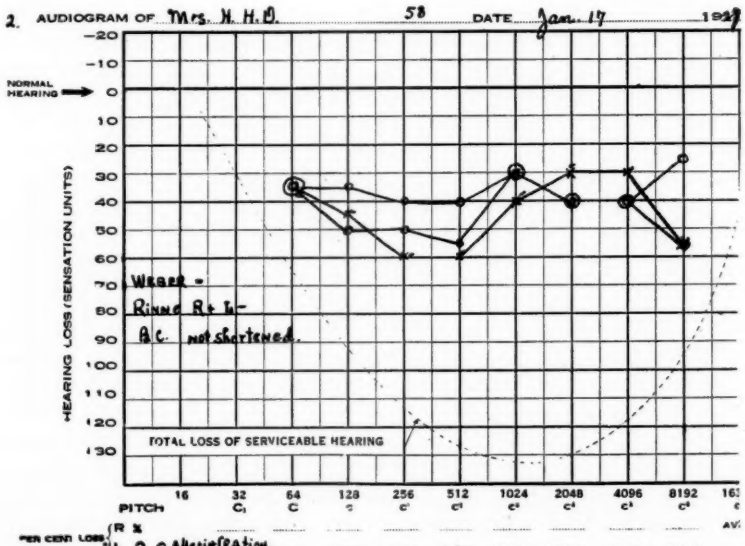


Case No. 2. Mrs. H. H. D. Age 58.

Patient was first seen on December 10, 1926. The main complaint was deafness. She had had difficulty in hearing in the right ear as long as she can remember. The deafness in

worse. There is no history of deafness in the family. The ears have never discharged.

EXAMINATION:—The nose and throat examination was essentially negative. Both drums were found to be thickened and retracted. The



Weber was not lateralized. The Rinné was positive in the right ear; negative in the left. Bone conduction was not shortened. The audiogram before treatment showed the hearing for the right and the left ears to be approximately the same. Both ears received the same treatment and yet on examination after treatment there was an improvement in the left ear with no improvement in the right. It will be noted that, whereas 8192 was heard at 55 before the treatment, it was heard at 25 after treatment.

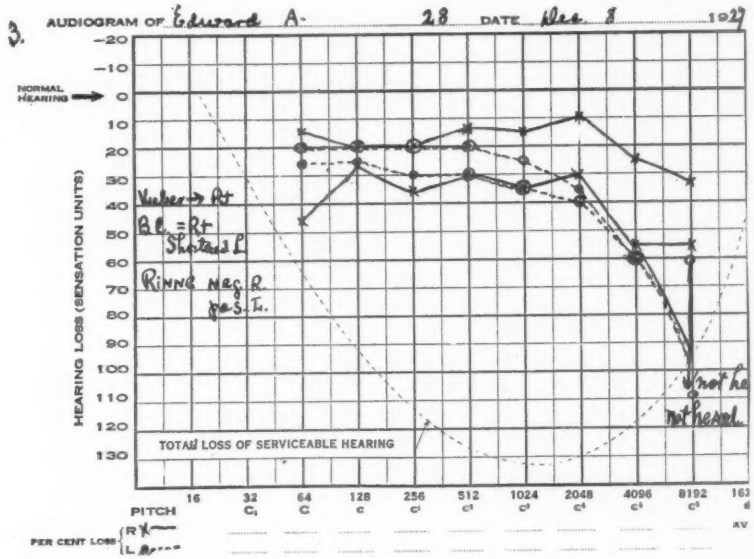
Case No. 3. Mr. E. A. Age 28.

Patient was first seen on December 17, 1927. He complained of deafness in both ears, particularly in the right. The deafness is of about fifteen or sixteen years' duration. There is no history of discharge. There is no history of deafness in the family.

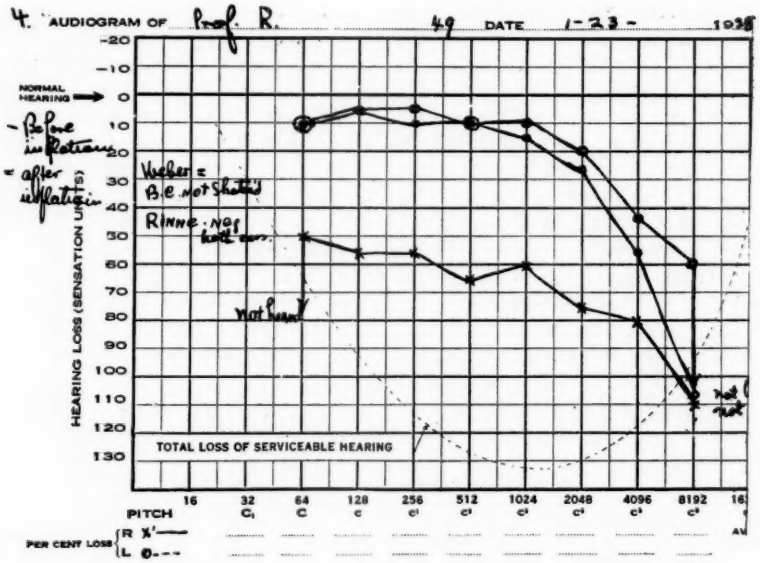
EXAMINATION:—The nose and throat examination revealed a chronic tonsillitis. Both drums presented a very unusual appearance. They were hemorrhagic and full. There were bleb-like formations on both drums. A paracentesis was done and a small amount of blood was obtained from both ears. After this the eustachian tubes were catheterized. Before treatment the Weber was referred to the right. Bone conduction was equal in the right; shortened in the left. Rinné was negative in the right; positive in the left. It will be observed from the audiogram that the right and left ears are very close together, except that 8192 was heard in the right ear at 55; whereas, it was not heard at all in the left ear. After treatment it will be noted that the improvement was decidedly more marked for the right ear and that the greater improvement occurred from 512 through 8192.

Case No. 4. Professor R. Age 49.

Patient was first seen on June 21, 1927. He complained of difficulty in hearing. The right ear had discharged since childhood. At seventeen years of age, polyps were removed from the right ear. The discharge continued up until about 5 years ago, since which time there has been no further discharge. The patient says that the left ear has never discharged. The deafness is worse in the right ear. The hearing in the left ear is variable. At times he can hardly hear at all and then suddenly the hearing will clear up.



EXAMINATION:—The ear examination showed great destruction of the right drum except for a small portion in the superior posterior quadrant. There was no discharge. The middle ear was well epidermized. The left drum was intact. However, in the inferior, posterior quadrant there was a depression which looked very much like a healed perforation. The membrane over this depression was so very flaccid that it could be seen to move with res-



piration. An audiogram was made of the left ear before and then immediately after eustachian catheterization. The patient gave unusually intelligent cooperation. It will be noted in the audiogram, that whereas 8192 was not heard on first examination, after inflation it could be heard. It will also be seen that the improvement in the hearing is particularly marked from 1024 through 8192.

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1212 *Eutaw Place.*

CHOLECYSTOGRAPHY:

A Valuable Diagnostic Method.*

By NOLAND M. CANTER, M. D., Harrisonburg, Va.

Sabatini, while studying the elimination of drugs through the liver, found that bromides are eliminated through the gall bladder and are found in the bile. Knowing that this element is opaque to the X-ray he saw the possibility of using it to make the gall bladder opaque, and this organ visible. He expressed the conviction that the gall bladder is made visible because it confines the bromide.

Early in 1924 Graham and Cole reported X-ray visualization of the liver and gall bladder by intravenous injections of tetrabromphenolphthalein, which is eliminated in the bile and renders the gall bladder opaque to the X-ray. This method greatly improved by the use of the sodium salt of tetraiodophenolphthalein has come to be universally used in the diagnosis of gall bladder disease. The technic lies in the injection of 4.5 Gms. of the drug in water in the early morning into the median basilic vein of the fasting patient. Radiograms are made at the fourth, seventh and tenth hour. The shadow of the gall bladder normally appears about the fourth hour, first appearing as a faint shadow, and gradually becoming more distinct, diminishing in size as it empties. Intravenous use of the dye is, however, handicapped by occasional severe reactions and the possibility of necrosis at the site of injection. The untoward symptoms are due to vasomotor depression and dilatation of the splanchnic vessels with congestion of

*Read at the meeting of the Medical Association of the Valley of Virginia, at Clifton Forge, in 1927.

the abdominal organs. Dizziness, nausea, vomiting, abdominal cramp and backache may ensue.

Recognition of biliary tract diseases has been greatly advanced by the direct examination of the bile, and by X-ray of the gall bladder area by means of this new method, called

Fig. 1.—Normal gall bladder. Note position, size, uniform outline, and homogeneous density.

cholecystography. Up to a short time ago the X-ray showed gall stones in only about twenty-five to thirty-five per cent of the cases, and gall bladder lesions by indirect evidence, such as concavity of the cap, or fixation of the latter to the under-surface of the liver by gallbladder adhesions. In another group of cases the shadow of the gall bladder could be seen and was then usually considered pathological. In as much as seeing an object is its greatest asset for becoming well acquainted with it, it must be considered of greatest importance to possess a method of actually visualizing the gall bladder.

Graham and his co-workers give the following summary of their work:

1. Cholecystography has been shown to be possible by a variety of substances.

2. The criteria that distinguishes the abnormal from the normal biliary tract have been established.

3. With the aid of this method we have been able to make a correct diagnosis in ninety-five per cent of the cases of cholecystitis with or without stones, which it has been possible to verify by operation and pathological examination of the gall bladder.

4. This method has proved to be accurate even in cases of early cholecystitis.

Use is also made of cholecystography in combination with barium in the X-ray exami-

Fig. 2.—Note density in lower portion of gall bladder due to dense inflammatory adhesions. A stone lies in sacculated lower, inner portion. Proved at operation.

nation of the stomach and duodenum in order to show the relations of the gall bladder to the latter organs. This method is of great importance in the differential diagnosis between cholecystitis and pyloric or duodenal ulceration. In about ninety per cent of the cases the shadow of the gall bladder is distinct, and permits one to say whether there is any pathological condition of this organ with regard to form, size, location and function. In about ten per cent of the cases no distinct

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shadow is seen indicating obstruction of the cystic duct, or thickened wall gall bladder.

For general use I prefer the oral to the intravenous method of giving the dye. The oral method is direct, the dye being absorbed by the portal circulation and carried immediately to the liver where it is excreted. The systemic circulation is protected from any great concentration of the dye.

The oral method has the following advantages:

1. It gives the patient less discomfort and there is practically no reaction and no danger of sloughing. When vomiting occurs with the oral method it is probably due to gastric irritation by the drug on account of imperfections in the coating of the capsules, thus allowing the dye to be set free in the stomach. The vomiting which accompanies the intravenous method is due to toxicity. The present preparation of tetrabromphenolphthalein in specially treated capsules prevents any unusual discomfort to the patient.

2. In general the effect to the patient is less noticeable with the oral method than with the intravenous administration. After the former the patient in most cases feels perfectly well.

3. The oral method is more convenient, and can be used in the office and is less time consuming.

4. It is a safer method as the dye does not reach as great a concentration in the systemic circulation if it reaches it at all.

5. We would suggest that patients suspected of having gall bladder disease first be given the drug by mouth. If there is a failure to make a satisfactory examination then one may resort to the intravenous method. The former, however, I believe, is better for general use.

The following is a summary of the technic used:

The patient is given about ten or twelve capsules, each containing five grains of the sodium salt of tetraiodophenolphthalein, and instructed to take half the number with a light supper the night previous to the day of examination period. After supper the patient is to lie on the right side and take one capsule every fifteen minutes with a small quantity of water, until all the remaining ones are taken. Radiograms are made at the 12th, 15th and 18th hour. The shadow of the gall bladder is oval or pear shaped, and should be of uniform outline, is homogeneous in density, and varies in

Fig. 3.—Shows a large dilated gall bladder, with a large stone lying outside in the duct. Note the layers of stone.

size with the filling and emptying of the dye. Abnormalities are shown by a faint or wholly absent shadow, by delay in filling or emptying, by deformities in contour, by unvarying size, and by mottling of the shadow. Failure of the dye to fill the gall bladder may be due to obstruction of the cystic or common duct by stones, adhesions, tumors, or by the presence of inspissated bile. Mottling of the shadow of the gall bladder may be caused by stones, papilloma, or pressure from the bile.

The diagnosis of the pathological condition of the gall bladder by means of this method has been found to be correct in more than ninety-five per cent of proved cases, while the clinical impression was correct in only sixty-five per cent.

The absence of the shadow is of chief importance. THE LESS YOU SEE, THE MORE IT MEANS IN RADIOGRAMS OF THE GALL BLADDER WITH THE DYE. This is the reverse of ordinary X-ray diagnosis. This is very hard to realize as one naturally feels there must be a fault in technic when the gall bladder shadow is absent.

Gall stones which are not seen in a plain film will be shown very distinctly by this test. There may be an imbibition of the upper layers of the calculi with the salt thus making the stone visible, or one may find the negative shadows cast by soft gall stones when in contact with the opaque bile; the latter type of stone showing as a negative show in the radiogram.

Stewart, of New York, has called attention to the following two findings:

1. Where there is no concentration of the dye in the gall bladder during the examination it indicates mucosal changes of cholecystitis.

2. Persistence of the shadow or failure of the normal diminution of the shadow following the administration of a meal is indicative of pathology.

Fig. 4.—Multiple gall stones revealed as areas of lesser density in the denser gall bladder shadow.

In a brilliant lecture on the "Relationship of Radiology and Surgery," Sir Berkeley Moynihan made the following statement: "In connection with gastric disease it is hardly too much to say that we owe almost everything to the radiologist. As we look back upon the his-

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tory of gastric ulcer in respect to its symptoms, diagnosis and treatment, we must now realize that before the radiologist came to the rescue there was little that could meet with our confident acceptance. I do not doubt that more errors have been made in the diagnosis of gastric ulcer than any other disorder. Its symptoms are mimicked so accurately by other diseases that even the wisest are deceived."

The radiologist has put all of this right or nearly right. The accuracy of the radiologist in the diagnosis of gastric ulcer nearly approaches that of the surgeon who inspects and handles the stomach. The occasions of error in diagnosis are so few that radiology remains supreme above all other methods in the accuracy of the diagnosis made with its help. If the diagnosis of gastric ulcer is made, by no matter whom, let us agree that it is not to be acted upon by the therapeutist, with drugs or weapons, unless the radiologist confirms it.

The method of cholecystography has placed gall bladder diagnosis on a par with the examination of the stomach and duodenum, and it is one of the most accurate methods of diagnosis that we have today.

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LEWIS WEBB CHAMBERLAYNE (1798-1854).

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

The qualities peculiar to the old Virginia gentlemen are well depicted in George W. Bagby's moving and impassioned essay on that subject. The reader of this eulogy is prepared to estimate the life of one of Richmond's most beloved physicians—Lewis Webb Chamberlayne. On Monday, January 30, 1854, two days after his death, appeared editorial enconiums in both the *Daily Dispatch* and *Richmond Whig*. The passing of an old Virginia gentleman was the testimony of both— the last of an old order, the light of other days, a man endowed with peculiar nobility and elevation of character.

One regrets that relatively little is known of the life of Chamberlayne. He made his impress, but he left no writings. Remembering what inspiration, in the preceding century, MacMichael got from the famous walking stick of five illustrious English doctors, we find ourselves wishing for another gold headed cane. However, he appears to have been a man of sterling worth, a man looked up to by his fellows as being made of finer clay and mourned at his death for the virtues exemplified. He possessed an impressive memory, and, thus armed, his natural conversational gifts were the more acclaimed. He was one of those frank and candid men whose sincerity brooked no dissimulation. Plain spoken, he was withal courtesy itself. He was firm and decided without a tinge of the dogmatic. Like so many others of his day and time, but altogether unlike his contemporary John Cullen, he was a "poor collector". A man of unbounded generosity, he gave liberally of his time and talent to the widow and the orphan, and thought little of the reward. He breathed and carried with him a wholesome moral atmosphere. In his presence one felt a challenge to a nobler self and the base and unclean scurried away on his approach. And though his tomb bears only the words "He rests from his labors", a more poetic hand might have chiselled:

"There is one crown I bear away with me,
And tonight, when I enter before God,
My salute shall sweep all the stars away
From the blue threshold: One thing without stain,
Unspotted from the world, in spite of doom
Mine own . . . . . .
My white plume."

The subject of this sketch traces his ancestry to the Byrds of Westover—a stock that has more than once adorned Virginia history. His father was Edward Chamberlayne. His grandfather, William, had married Wilhemina, daughter of Colonel William Byrd. Lewis Webb Chamberlayne first saw the light of day at "Windsor Shades", King William County, Virginia. The year was 1798.

The years went by as they did for so many

other boys in the first decade of the 19th century. Nothing out of the ordinary, as far as we know, marked the childhood and adolescence of young Chamberlayne. Nothing out of the ordinary happened when, in due course of events, having decided on medicine, he, at the age of seventeen or eighteen, journeyed to Philadelphia and matriculated.

The University of Pennsylvania was the oldest medical school in America, founded in 1765 by John Morgan, who had been a pupil of Hunter in London and Cullen in Edinburgh. The traditions of the best of English medicine were kept alive by succeeding members of its faculty who continued to draw their inspiration from across the Atlantic. Southern students, particularly in the early days of the Republic, were attracted to Philadelphia. It is estimated that 4,000 studied medicine at the University of Pennsylvania alone between 1810 and 1843. It is not surprising, therefore, to find Chamberlayne graduating here in a class of eighty-seven in 1817. The school was housed in those days in the "Presidential Mansion", a house on Ninth Street, originally built for George Washington, since razed to give place to the present United States Post Office. Chamberlayne's teachers were distinguished men, many of whom are proudly remembered today by their alma mater. Nathan Chapman held the Chair of the Institutes and Practice of Medicine. Casper Wistar was Professor of Anatomy. John Syng Dorsey taught Materia Medica. Philip S. Physick still held the Department of Surgery. James, Coxe, Howson, Cooper, Caldwell and Barton were also his teachers. The Pennsylvania Hospital and the Almshouse furnished clinical material in those days, as now. The opening address of John Morgan, 1765, contained words which were prophetic of the continued service of this great institution: "By sending those abroad duly qualified, or by exciting emulation amongst men of parts and literature, it may give birth to other useful institutions of similar nature." It did, when this graduate of 1817 founded, with others, under the auspices of Hampden-Sidney College, the Medical College of Virginia.

Sydenham once said that two-thirds of medical practice was concerned with febrile diseases. Chamberlayne's graduating thesis was entitled "Intermittent Fever." The young doctor had launched into one of the most popular as well as vexed questions of his day,—fever, especially the more dramatic intermittent types, having attracted the best medical thought from time immemorial. Hippocrates, Galen, Paul of Aegina, Avicenna—all of the ancients—gave lengthy descriptions and crude classifications. Then the blight of the Middle Ages. After one thousand years of sleep, medicine reawoke with the rest of the intellectual world. The ferment of new ideas among other things brought better conceptions of febrile diseases. Thomas Sydenham (1624-89) made a classical contribution to the literature of these common disorders, incidentally describing and naming scarlatina. It was not till 1828 that light again dawned on this subject. In this year Louis' "Researches on Typhoid Affection or Fever" appeared, and the inspiration of the great teacher began to filter through to America. The contribution of early Americans to this subject is a thing we still point to with pride. Elisha North's treatise on "Spotted Fever," 1811, is a classic; no less Nathan Smith's essay on "Typhus Fever," 1824. Gerhardt and Stille each made a splendid contribution to American Medicine

Lewis Webb Chamberlayne, M. D. (1798-1854).

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in 1836, in the differentiation of typhus and typhoid fevers. In 1842, Elisha Bartlett's work on fevers appeared and was the most notable of them all.

It is hard to realize that in spite of the clinical recognition of the different important febrile diseases a real understanding of them did not come until the last two decades of the 19th century, when bacteriological discoveries gave us a real and lasting etiological classification.

The intermittent fever of Chamberlayne's thesis has been recognized and described by Hippocrates. The ancients recognized quotidian, tertian and quartan varieties. Sydenham seems to have known very little more. By Bartlett's time (1842) these fevers were being related to localities, and marsh emanations, miasm, and malaria were terms in vogue to describe these mysterious causative influences. It was not until 1880 that A. Lavaran "pointed out the existence of a new parasite in the blood of patients suffering from palustral fever" (malaria).

In 1820, aged twenty-two, Chamberlayne married Martha Burwell Dabney. Thirteen children came of this union. One of them, Mrs. George W. Bagby, was especially distinguished for her humor and good sense. The Chamberlaynes lived first at 197 W. Main Street; later at "Montrose" in Henrico County, just adjoining "Brook Hill", then owned by his sister's husband, Mr. Williamson.

Richmond was a town of 20,000 inhabitants. Not an inconsiderable number of doctors were practicing here in 1845,—forty in all, exclusive of two botanic practitioners. Fifteen had offices on Main Street, nine on Marshall and seven on Franklin. A page from Ellyson's Business Directory and Almanac for this year is interesting:

ELLYSON'S BUSINESS DIRECTORY AND ALMANAC* FOR THE YEAR 1846.

Practitioners of Medicine.

Beale, Jas., cor. W. Marshall and 6th, residence same place.
Bohannan, H. L., Mayo between Franklin and Broad, residence same place.
Bohannan, C. J. F., cor. Main and 15th.
Bolton, J. W., W. Grace between 4th and 5th, residence same place.
Brown, P. W., W. Franklin between 4th and 5th, residence same place.
Broocks, J. W., cor. New and W. Franklin.
Burton, M., basement Powhatan House, residence Powhatan House.
Cabell, R. H., W. Franklin between 13th and 14th, residence Grace between 5th and 6th.
Cabell, R. G., W. Franklin between 13th and 14th, residence Grace between 5th and 6th.
Cabell, J. Grattan, W. Franklin between 13th and 14th; residence Grace between 2nd and 3rd.
Carrington, Church Hill, cor. E. Grace and 24th; residence same place.
Carmichael and Mills, cor. W. Broad and 10th; Dr. Carmichael's residence, Virginia House.
Chamberlayne, L. W., 197 W. Main; residence same place.
Clark, and Son, M., cor. W. Franklin and 5th; residence same place.
Clay, E. G., 22 W. Main.
Cullen, John N., 13th bet. Franklin and Capitol; residence same place.
Cullen, P., 10 N. 13th.
Cunningham, John A., Main bet. 8th and 9th; residence same place.
Deane, Francis H., cor. W. Broad and 9th; residence same place.
Dove, John Franklin, bet. Birch Alley and 17th; residence E. Main bet. 19th and 20th.
Dove, James Franklin, bet. Birch Alley and 17th; residence E. Main bet. 19th and 20th.
Gwathmey, W. H., Birch Alley.
Haxall, R. H., cor. W. Main and 10th; residence same place.
Johnson, C P., 150 W. Main.
Johnson, Thomas, 36 W. Main.
Mark, F., 189 W. Main; residence same place.
McCaw, J. D., Powhatan House.
Minor, G. G., 76 W. Main; residence Carlton House.
Myers, Henry, N. 13th bet. Capitol and Broad.
Nelson, Thos., cor. W. Main and 7th; residence same place.
Palmer, W. G., cor. S 13th and Main.
Patteson, W. A., 100 W. Main; residence same place.
Rawlings, George W., Broad bet. 9th and 10th.
Smith, D. D., E. Main bet. 19th and 20th.
Snead, Albert, cor. Broad and 5th; residence cor. Marshall and 5th.
Thomas, Creed, Broad bet. 7th and 8th.
Tompkins, J. H., 8 N. 13th; residence Bosher's Row.
Warner, Aug. L., Franklin bet. 7th and 8th; residence same place.
Watson, Geo., cor. Franklin and 6th; residence same place.
Wortham, A. G., 71 W. Main; residence cor. Marshall and 2nd.

W. W. Marshall, Botanic Practitioner, E. Main bet. 19th and 20th.
E. D. Bibinson, Botanic practitioner, Broad bet. Brook Ave. and Foushee.

Among the forty other physicians who were his competitors at this time in Richmond, Chamberlayne rose rapidly. In 1838, he joined Cullen, Warner, Bohannan and Johnson in the founding of the Medical College of Virginia. He assumed the chair of Materia Medica and Therapeutics and held it until his death. The first week of each college session was devoted by custom to certain popular lectures given by the faculty in rotation. The newspapers announced these in advance and commented editorially upon the lecture of the preceding day. Thus, amid a riot of adver-

*In possession of Mrs. Archer Jones.

tisements of private schools, lotteries, escaped slaves, foreign news, politics, imported stallions—black Arabians, Zinganee, Mingo, King David, Margrave—occurs this announcement in the *Daily Whig* of October 28, 1845, "The exercises of this Institution commenced yesterday with Dr. Chamberlayne's introductory lecture . . . . The medical faculty of the city and citizens generally are invited to attend." In a time when so much store was still put by platform teaching, the faint praise of a student of his in the class of 1840-41 should not be considered derogatory. Says this student, "the professor of Materia Medica was a pleasing lecturer, but a very close follower of the text-books." Perhaps the professor was one of those modest speakers who feel compelled to follow their notes and did not go off on oratorical tangents, a fault of the professional chair not confined to his day. That the professor could write—did write clearly and ably—was the testimony of his contemporaries. At intervals articles from his pen appeared in the lay press and were applauded for their force and vigor.

Tomb of Chamberlayne in Brook Hill Cemetary.

The teacher of therapeutics, if he appeared to follow the text-books of his day closely in lecture, was not as orthodox in practice, and the large following he had was evidence enough that he got results. In the first place, he was avowedly opposed to bleeding. How different from his friend, John Cullen, who implored someone to bleed him on his death bed! "Cholera" was a popular and blanket term for many of the intestinal disorders of the day. "It requires," wrote Rodly Dunglison in 1846, "the irritation be allayed by full doses of opium," and this in the same author's famous dictionary is given as five grains. Chamberlayne was one of those who opposed such practice. His cholera prescription was—

℞ Spirits of Lavendar
Spirits of Camphor
Jamaica Ginger āā
Sig. ʒi in aq. as needed.

"Grandfather's mixture" is still cherished by his descendants, and failure to cure has never been known—when taken for the proper ailment.

In 1854 he was very sick—so sick that the report got abroad that he could not live. This set the college authorities to thinking about his successor in the chair of therapeutics. For the first time the subject was broached whether the choice of a new professor was the prerogative of the Board of Hampden-Sidney College or whether that authority was vested in the medical faculty. This same question, put off for the present by the recovery of Chamberlayne, was the unhappy shoal which ship-wrecked the union of the two institutions two years later.

Chamberlayne was just 56 years old. Something happened which brought him with swift steps to the gates of death. Just before daybreak Saturday, January 28, 1854, at Montrose, Richmond's beloved physician died. Among the virtues which marked him there were none greater than that he was a generous, high-minded, and unselfish gentleman, and a physician whose heart was touched by nothing so much as the feeling of our infirmities.

"S. O. S. BELLYACHE."*

By J. E. RAWLS, A. B., M. D., F. A. C. S., Suffolk, Va.
Surgeon-in-Chief, Lakeview Hospital.

Pain is as old as the human race. No individual has been free of it at all times. It has been termed the red light signal of danger. It has been considered Nature's call for help in time of trouble and distress.

In fact, without pain the ravages of death

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Norfolk, Va., December 6-8, 1927.

would be unrecognized and the victims would pass out without knowledge of the cause and thus without therapeutic help. So it would be well to consider pain as a blessing in disguise.

All subjective symptoms are pain or modifications of pain. In other words, pain or modification of pain is common to all diseases that give subjective symptoms.

Example: A patient has typical pain as kidney colic, and we call it pain. He has a burning or full sensation in epigastric region, and we call this pain, but modified pain. The difference in the first instance and that of the second is in cause, location and degree. Thus, pain or modified pain is common to and stands prominently in all diseases of which you are able to secure a subjective history. Since this is true, we would say that a disease should be greatly recognized or diagnosed as such by, first, its pain or modification, and, second, the grouping of other clinical data around this, such as can be derived from clinical history and confirmed by physical examination, observation and intuition.

In studying abdominal pain, we find quite a variety of causes. Abdominal pain can be divided into three classes:

1. Pain of organic origin.
2. Pain of reflex origin.
3. Pain of functional origin.

We wish to speak of a few pains of organic origin which we consider emergency calls for help, and which, for emphasis, we have termed "S. O. S. Bellyache."

The great majority of abdominal pains can be well-termed dry-dock pains—pains that are not an emergency, are not calling for immediate help, but are signaling danger to be cared for in the near future. Examples are pain of hepatic colic, pains of gastric and duodenal ulcers. Some of those of the emergency or "S. O. S." group we wish to emphasize, such as:

1. Acute complete intestinal obstruction.
2. Acute traumatic gastro-intestinal perforation.
3. Acute perforated gastric ulcer.
4. Acute perforated duodenal ulcer.
5. Acute appendicitis.

Let us consider the respective characteristic pain as a basis or unit for recognizing or diagnosing the foregoing acute emergency "S. O. S." abdominal conditions.

Acute Intestinal Complete Obstruction: We look for pain, and we find it standing out prominently. This pain is, first, localized, and second, it is intermittent. This intermittence is very characteristic, corresponding to the intermittent intestinal peristalsis, resembling very much the labor pain. In acute intestinal indigestion, causing violent peristalsis, we have more or less varying position or location of the pain, while in acute obstruction it is localized. To this you have other symptoms, such as the characteristic vomit, and the like.

If the life-saving boat does not reach the sinking ship in the way of operation within twenty-four hours, 25 per cent go down; if not until the end of forty-eight hours, 50 per cent perish; if not until the end of seventy-two hours, 75 per cent die; if not until the end of ninety-six hours, all go down with a mortality of 100 per cent.

Early diagnosis with surgical intervention would save many of the 13,100 that die annually in the United States.

Acute Traumatic Gastro-Intestinal Perforation: Here we have severe acute abdominal pain. When you have this pain with a history of recent abdominal trauma, whether or not the abdominal wall has been perforated, you think of gastro-intestinal perforation,—especially so when you have given morphine, grs. ¼, ½ or ¾, and still the patient is not free of pain. The earlier the operation, the better the prognosis.

Acute Perforation of Gastric Ulcer: We would be directed to this organ by a history of pain or modification of pain, such as burning or distress, indicating an ulcer. What is there peculiar about this? The pain or distress, first, is epigastric; second, it comes on while the patient is taking food or immediately afterwards, and, third, it is relieved when the stomach is empty.

When you have a sudden pain with the foregoing history and you have given your patient from one-fourth to a grain of morphine in six to eight hours and he is not relieved, it is practically 100 per cent perforated gastric ulcer, and is an emergency.

Acute Perforated Duodenal Ulcer: To condemn this organ as the offending member, we would have to get a history of a peculiar pain or distress. What is there characteristic about this pain or distress? First, relation to the meal. It comes on when the stomach is

empty,—just before the next meal. Second, it is relieved by taking food or soda. Third, the location, as a rule, is one and a half to two inches above the umbilicus and one and a half inches to right of the median line. A history of the above would condemn the duodenum.

With this history of sudden severe epigastric pain which requires two or three ¼ grain doses of morphine within six or eight hours to relieve, you can stake your life on an acute perforated duodenal ulcer, and the necessity for emergency surgery.

Acute Appendicitis: What is there characteristic about the pain of acute appendicitis? The pain in 60 to 70 per cent of acute appendicitis cases begins in the epigastric region and in two or three hours spreads gradually over the entire abdomen, especially around the umbilicus. In six to eighteen hours after the onset, the pain or soreness localizes in the abdomen and usualiy in the lower right quadrant in the McBurney region. This is so characteristic that you do not have to see the patient to diagnose it. You can diagnose it over the radio or wireless. This was done last summer by the ship surgeon on our way to Europe. The patient was a captain on a ship 500 miles away, and there was no ship surgeon. A description of the typical pain was broadcasted and our surgeon picked it up and advised the best course of treatment under the circumstances. The pain of an acute appendix is an emergency; it is an "S. O. S." call, and reminds us that 18,487 die in the United States yearly.

The human family, yes, our family, is sailing over life's fateful and tempestuous sea, and may we, as physicians, teach the public, and be able ourselves to tune in and respond promptly and definitely to the "S. O. S. Belly-ache" when it calls, and thus save the hundreds that go down annually in our nation.

REPORT OF A CASE OF UNILATERAL DEAFNESS WITHOUT VESTIBULAR INVOLVEMENT CAUSED BY MUMPS.

By EMANUEL U. WALLERSTEIN, M. D., Richmond, Va.

V. C., white female, age eighteen years, was first seen on April 13, 1927, complaining of deafness of the left ear. She was referred for tonsillectomy by her family physician who thought that her ear condition might be benefited by this operation.

The patient was a well-developed young woman whose past history was essentially negative.

Six weeks ago she had mumps, both parotid glands being involved. Diagnosis of mumps is certain, as a sister had the disease at the same time.

The case was very mild and her family physician permitted her to return on the third day to her employment. On the fourth morning she noted an intense roaring in her ear, deafness, but no pain. There was no vertigo.

The essential points in examination were:

Ears: Drums normal in appearance. Tubes patent.

Nose: Negative. No evidence of sinus infection. Transillumination normal.

Throat: Tonsils hypertrophic. Functional tests of hearing showed normal function on the right. Left ear completely deaf.

Vestibular Tests: The semi-circular canals of both sides showed normal reactions to both the cold caloric and rotation tests.

Wassermann (blood): negative.

Diagnosis: Total deafness of the left ear due to mumps.

Vestibular function unimpaired.

The older concept of mumps as a disease confined to the parotid no longer holds. The modern view is that the disease is a systemic infection having a predilection for glandular tissue. Besides the parotid any or all of the following can be involved, viz., submaxillary, sublingual, testis, ovary, breast, thyroid, pancreas.

The ear complications can be divided into two categories:

1. *Specific.*—Confined to the inner ear.

2. *Non-Specific*, or Incidental.—Involving the outer ear or the middle ear.

Toynbee, in 1860, was the first to direct attention to the inner ear complications. Inner ear complications are observed in every age, and there is no difference in the sex incidence. The severity of the mumps has no effect on the degree of ear involvement. Thus, a mild mumps may produce a severe inner ear disturbance and *vice versa.* An unilateral parotid involvement can produce a bilateral ear complication and a bilateral parotitis can produce unilateral ear disturbance.

Three types of inner ear complication are described:

1. The primary gland affection is a paroti-

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tis, followed by, immediately or within fifteen days, an inner complication.

2. The primary gland involvement is not a parotitis but that of the submaxillary, sublingual or testis. The inner ear complication follows within a few days. The type is rare.

3. The rarest type is an inner ear complication preceding the clinically manifest gland affection by several days.

Pathology.—It was originally thought that the infection spread directly from the parotid to the ear along the facial and trigeminal nerves or by way of the Glaserian or Santorini's fissure. This view is not tenable because, with a one-sided parotitis, the opposite ear can be affected. Whether it is a purely toxic or inflammatory change has not been proven, as pathological examinations are lacking. The possibilities are meningitis, neuritis, labyrinthitis, either single or combined.

Symptomatology.—The usual course is a sudden sticking pain in the ear combined with tinnitus. With the disappearance of tinnitus there is a return of some function or, more commonly, a complete deafness of the affected ear. In a bilateral involvement, one side usually follows the other, and the second ear so affected has a slightly better prognosis.

Frequently the vestibular apparatus is affected. In mild cases there is vertigo which quickly passes off. In severe cases there is intense vertigo, nausea and vomiting. Spontaneous nystagmus is present, usually to both sides, or toward the healthy side.

The vestibular function can be involved with the cochlear.

Therapy.—Although many remedies are suggested, none are of proven value. Inflation is to be avoided.

Prognosis.—There is no danger to life in uncomplicated ear involvement. However, if meningo-encephalitis develops, life is endangered. Complete deafness is the usual outcome of an affected ear. Mumps is a very rare cause of deafness. In vestibular involvement there is usually no return of function but compensatory changes take place.

REFERENCES.

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403 *Professional Building.*

MALARIA CONTROL FOR CITIES AND COUNTIES.*

By L. L. WILLIAMS, JR., Surgeon, U. S. Public Health Service, Field Headquarters: Richmond, Va.

Much has been written on the subject of malaria control. Too much has been highly technical and much too much has been of a general nature. My object today is to present, as simply as possible, an outline of those specific measures which, if applied in this country, will control malaria.

There are but two certain measures of control, namely, adequate screening and the control of the production of the *Anopheles* mosquito. Much has been said of quinine prophylaxis, but at best such measure will only reduce a heavy death rate or severe morbidity. In our country this measure has such a limited application that it will not be considered here. The economic status of any area must determine the mode of attack. In the well-to-do communities, where people live close together, it is advisable to attack the mosquito and to include *all* mosquitoes, pestiferous as well as the malaria-carrying. If the population is well-to-do but small, as in many of our communities, then it is usually necessary to confine the attack to controlling the production of *Anopheles quadrimaculatus* only. Where the people are poor and the area is large, then wholesale screening is the only effective method remaining.

Screening is possible for all. In former times the average cost of screening a home has been as high as $40 or $50 per house, and some mosquitoes got in. Screens were used only on well-constructed homes. There is a large class of so-called tenant shack which has been termed "unscreenable." This term can no longer be truthfully used. Today there is no such thing as an unscreenable shack, for all may be screened within a reasonable cost. The poorest type may be mosquito proofed at a cost of not over $8 per home.

For many years the Public Health Service has carried on studies and has made observations on the effectiveness of various types of screening and of the screening of various types of homes. During the past three years an intensive study has been carried out, which has given us a simple method of "mosquito-proofing" even the poorest of tenant homes.

*Read before the Virginia Public Health Association, January, 1928.

Following Coogle's work in Mississippi, no one can say it can't be done.

Coogle lays down the simple procedure as follows:

(1) If the cracks in the walls be small, cover them with a few rolls of ordinary paper adhesive tape, such as is now in common use in nearly every store in place of string; (2) flatten tin cans and tack over the holes in the floor; (3) tack 16-mesh screen wire over the outside of each window from top to bottom; (4) hang cheap screen doors; (5) hang a small cage of naphthaline balls (moth balls) in the chimney about two feet from the top.

Surely there is nothing difficult in the above procedure and each step is perfectly obvious with the possible exception of "cheap doors." However, even this is a simple matter, for Dr. Coogle has devised an easily made, very cheap and very strong door. Every health department in mosquito countries should have a number of pamphlets describing the manufacture of this door. In brief, the method is dependent upon joining the corners with thin metal strips instead of mortise joints. In cutting the frame of the door, each corner is cut at an angle of forty-five degrees so that the door-frame fits together like a picture frame. These joints are held together by tacking across the corners, on either side, 6-inch triangles of 12-gauge galvanized iron. The metal triangles on the screen side are applied after the screen is tacked on. Two cross-pieces, approximately one-third the distance from the bottom, are set across the door and held in place by 3-inch metal strips in the same fashion as the corners. Strange as it may seem, a man weighing two hundred pounds may swing on the outer corner of this door and yet the door show no signs of giving. The screen door is hung on the outside of the house door-frame and one-inch strips are tacked to the door-frame over the top of the screen and along the side. A narrow piece of canvas is tacked at the bottom of the screen door.

Such a door will last for years and can be made by unskilled labor. As a matter of fact, in the malaria control work of the Mississippi Valley Flood Emergency, it was found that carpenters were entirely too slow and most rapid production was secured by using high school boys.

The screening method in malaria control is unspectacular but effective. One Virginia county put on a two weeks' screening campaign with remarkable results. People are but waiting to be urged. Almost any county health department can secure a revolving fund of a few hundred dollars with which to purchase a relatively small amount of screen wire, quickly train one or two laborers in the making of doors, and actually screen the homes in the malaria sections at cost—an average cost of $8 per tenant shack. This will last approximately four years. How could we secure control of malaria more cheaply than $2 per year per family?

Mosquito Control.

Mosquito control should be divided into two general types, namely, permanent control and seasonal control, and should be discussed under three general headings:

(1) Control of all mosquitoes.

(2) Control of all *Anopheles*.

(3) Control of *Anopheles quadrimaculatus* only.

It should be remembered that, in these parts, *Anopheles quadrimaculatus* breeds in absolutely still water only; all other *Anopheles* will breed in reasonably still, clean water, with some floatage; and that pest mosquitoes breed in containers, dirty water of all descriptions and salt water.

Drainage is the most effective method of controlling the production of mosquitoes. Remove the water, and you remove the mosquitoes. It is unnecessary to go into a detailed discussion of drainage at this time. It is best to drain all places *known* to produce mosquitoes, and then await the advent of the breeding season. Thereafter, whenever and wherever adult mosquitoes are found, an intensive study should be made of all waters nearby and those wherein mosquito larvae are found should be drained. In cities and towns it is necessary that an inspector search for container breeding close to homes. Rain barrels, buckets, water troughs, cisterns, etc., have the power of destroying the morale of an anti-mosquito campaign. Where all mosquitoes must go, then undrainable places must receive weekly doses of oil throughout the summer season.

In the second type of place, where *Anopheles* only are to be stopped, it becomes necessary to search out their exact breeding places. As these are found they are put under control. If drained, they are gone for all time; if to be

treated seasonally, economies may be practiced which are not allowable where *all* mosquitoes must go. In these places Paris green may be applied, as this dust is usually ingested by *Anopheles* only. Paris green is mixed with dust (road dust, etc.), one part Paris green to ninety-nine parts of diluent dust. The mixture is cast on the windward side of the breeding areas and the breeze does the work of spreading. One pound Paris green per acre of breeding area is enough. If the breeding areas be not over twenty acres within a total area of twenty-five square miles, then one inspector with one car can do all the dusting on one day of each week.

In the third and last type of place, namely, where control of production of *Anopheles qualrimaculatus* only is contemplated, the work is much simplified, at least in the State of Virginia. Here *quadrimaculatus* is the only vector of malaria, and breeds only in water with no apparent current.

If a town or small community is so fortunate (and many are) as to have small ponds as the only quiet water within a mile, then the problem is simple. Either drain the ponds or apply Paris green once a week. I would advise no other course; none other would be cheaper or more effective.

In closing, I will give a brief word of advice to health officers: Look for the measure of your work in the end results. If the campaign is for screening, then the effectiveness of the work is measured by the presence or absence of mosquitoes within the house. If the campaign is to control mosquito production, do not waste much time dipping for larvae. Look for adult mosquitoes, and dip only when adults are found.

The measures here described are simple, easy to learn, and are effective. Any sanitary officer is capable of carrying them out. Each of these procedures has been done at one time or another by a totally untrained inspector with not over two weeks of supervision. With control so easy, why should any county retain its malaria rate?

Miscellaneous

Nose and Throat Clinics Proposed for Rural Districts In Virginia.

The committee composed of Drs. H. S. Hedges, Clifton M. Miller and H. B. Stone, appointed by the Virginia Society of Otolaryngology and Ophthalmology, to study Nose and Throat Clinics in the rural sections of the State, offered the following resolutions to the Society on April 28, 1928. They were unanimously adopted:

To the Ophthalmological and Otolaryngological Society of Virginia:

Whereas the reports of the physical inspection of school children in Virginia show an outstanding need of correcting eye, ear, throat and nose defects, and whereas there are large areas in the State, especially in the mountainous sections where, because of poor transportation facilities or lack of money, these children are not able to get to the centers where specialists are available, to receive treatment which they need, we, your committee, appointed to work out a policy for handling such cases, make the following recommendations:

1. That the members of the society hold themselves in readiness to meet calls for clinical service in such areas;
2. That all clinics thus held shall be under the direction of an executive designated by the State Board of Health, whose special business it shall be to work up these clinics in cooperation with the local health workers and local physicians;
3. That these clinics shall not be held in counties where there are specialists or hospitals doing eye, ear, nose, and throat work;
4. That before putting on a clinic, the local medical society shall always be consulted;
5. That the State be districted according to the attached map and the society designate conveniently located operators for each district;
6. That the State Board of Health shall supply the necessary record forms for use in the clinics. It is suggested that the North Carolina card system would be valuable in recording the work of the clinics;
7. That no operator who cannot meet requirements for admission to membership in the State Ophthalmological and Otolaryngological Society shall be appointed for clinical work in the rural districts.

8. Conduct of Clinics:
   a. That after the clinic is over the operator shall remain over night or in a calling distance, or shall leave adequate medical assistance in case of need;
   b. The number of patients assigned to one operator shall be not more than twenty-five per day;
   c. An anesthetist, preferably a trained anesthetist, shall be employed and paid not less than $1.00 a patient;
   d. Prior to the operation all patients shall have a physical examination including urinalysis and a coagulation test;
   e. All patients operated on shall remain over night;
   f. No patients who are financially able to pay the regular fee charged in the locality shall be accepted in these clinics and these shall be selected with the help of local physicians;
   g. As far as practicable, a graded fee system shall be used from a maximum of $12.50 to whatever the patient can pay. A limited number of patients unable to pay at all may be accepted;
   h. Operator's fee shall be placed at not more than $100 per day;
   i. The age of the patient shall be limited from four years through the public school age.
9. That a standing committee from three to five members be appointed to act as consultants and advisory to the State Board of Health in this work.

The standing committee appointeed by the president is composed of Dr. Clarence Porter Jones, of Newport News; Dr. H. Grant Preston, of Harrisonburg, and Dr. Harry B. Stone, Roanoke, chairman.

Extension Work in Graduate Medical Education.

(Issued by the Council on Medical Education and Hospitals, Chicago.)

The increasing interest in extension courses for physicians unable to leave their feld of practice has resulted in the development of several plans for making such courses available. Several of the plans have now been in operation long enough to make a comparative study practicable.

Every plan developed has its points of advantage. No one plan could be adapted to all the varying needs and conditions. For this reason, a plan found superior in one state might prove decidedly inferior in another, and in this comparative study a comparison of values is not attempted.

Every plan discussed below is primarily a way of making graduate medical training available to those physicians who would otherwise not receive it. A few can leave their work and go to the medical schools, but the majority cannot, and many others will not, do so. Extension work is an effort to reach this majority, thus raising the general level of proficiency throughout the entire medical profession. While the work is still new, the success achieved in several states indicates that it is already advancing beyond the experimental stage.

The North Carolina Plan

In 1916 the state board of health, the medical school and the extension division of the University of North Carolina, following plans first worked out by the Fourth District Medical Society, arranged two itineraries, each of which was to be covered by a clinician every week for twelve successive weeks. There were six centers in each itinerary; in each center a lecture was given and followed by a clinic. A group or class of physicians was organized in each center and a tuition fee sufficient to cover the salary and traveling expenses of the instructor was charged. Expenses of organization were borne by the university and the state board of health. All work with patients was done during the sessions, no cases being worked up in advance.

The World War interrupted this work, but it was resumed in 1922 and has been carried on every year since then with gratifying success. The following are a number of interesting facts regarding it:

(*a*) In operation 6 years—1916 and 1922 to 1926 inclusive.

(*b*) Courses conducted in forty-two centers located in practically all sections of the state.

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(*c*) Total enrollment, 1,185. Actual number of physicians registered for at least one course, 852, or between 40 and 45 per cent of those in active practice in the state.

(*d*) Attendance varied from 76.2 to 90 per cent. No evidence of loss of interest due to repetitions of courses, though several were offered four times.

(*e*) Subjects were restricted to pediatrics, pathology and general medicine. The twelve-weeks' course was last year divided into three series of four lectures each, given by three different instructors. Next year there will be two series.

(*f*) The courses were given in the summer, and instructors were brought from outside the state.

(*g*) Towns of from 1,500 to 50,000 population were chosen as centers. Only those centers guaranteeing an enrollment of at least fifteen were chosen. A personal office-to-office canvass was made in securing enrollments. The tuition fee for each physician was $30.

(*h*) The length of the session was approximately two hours. After a one-hour lecture on the topic of the day, from one to ten patients were seen, without regard to their bearing on the day's topic; most of the patients seen presented some diagnostic or therapeutic problem, and this plan worked best, of all the plans tried. Failure to work up cases in advance often resulted in a waste of time, but it had some advantages. Open discussion prevailed and was participated in by practically all present.

Missouri adopted the North Carolina plan with some modification, and in 1919 and 1920 conducted courses in nine centers. In this work the state medical society co-operated with Washington University, St. Louis University and the University of Missouri. In seven of the centers the courses were successful; in the other two the coal shortage is said to have prevented the completion of the work.

West Virginia, following the same plan, conducted eight-weeks' courses in six centers during the summer of 1923, and in twelve centers in 1924. The subjects treated were pediatrics and internal medicine. Lack of funds has prevented a continuation of the work, but plans are now under way for its revival.

Oklahoma adopted this plan with modifications in the spring of 1926. The state board of health provided a trained nurse, who planned the clinics. The work was planned so that director and nurse would be busy throughout the entire year, and in spite of poor roads the work was everywhere successful. One twelve-weeks' course, six nine-weeks' courses, and one one-week intensive course were held. Each course or circuit reached six or seven centers, with one or two lectures and clinics at each weekly visit. The work has been done through the Extension Division of the University of Oklahoma, in co-operation with the School of Medicine, but the instructors have been brought from institutions outside the state, as was done in North Carolina. Pediatrics and general medicine have been the subjects treated during the past fifteen months. Courses in tuberculosis and obstetrics are now being planned.

The Wisconsin Plan

Work was begun in Wisconsin on the North Carolina plan in 1917, but was soon changed to the holding of lectures and clinics either singly or in series, at any point in which a group organized and asked for them. An appropriation from the state was obtained. Elaborate outlines of courses were prepared and made available to the officers of the county medical societies. Aid was given in organizing a group if desired, and the length of the course and personnel of the instructors were accommodated to the desires of the group. Clinics were to be arranged and cases worked up in advance by the group. If possible, all preliminary work was done by correspondence between the county society and the extension division of the university. During the last two years, "no one has been particularly responsible for the organization of this work, and it has come pretty largely to a standstill," but a new committee has recently been appointed, headed by the man who organized most of the courses in North Carolina, and the work is again being organized and started on a broad basis.

The program as now planned is fourfold, provision being made for: (1) medical literature and clinical case report service; (2) extramural lectures for medical society programs; (3) short courses at the university, covering a 3, 6 or 12-day period, and (4) six-lecture clinical group courses in all sections of the state. All this work will be well started by the spring of 1928.

Minnesota adopted, at a date unknown to us, a plan similar to that of Wisconsin, though differing in several details; an eight-weeks' course is offered to county societies. Each weekly session consists of a morning-and-afternoon or an afternoon-and-evening program under the direction of two members of the faculty of the University of Minnesota Medical School. The state medical society helps in the work of organization. If clinics are to be held, the local group or class prepares for them. There is no state appropriation. No charge is made for the instructors, but their expenses and a certain amount of overhead are paid by the group. A three-day intensive course is also put on at the university, and other lectures and clinics are provided in Minneapolis. The Minneapolis courses are arranged by the co-operating action of the university and two strong county societies. They fill one evening each week for from ten to seventeen weeks, and are well attended by physicians in or near the twin cities. The three-day intensive course at the university occupies the entire time from 8 A. M. to 10 P. M. and has been of great service to physicians throughout the entire state.

The Colorado Plan

In Colorado, extension courses have been organized by the state medical society. During 1924, about forty teachers were secured and grouped in ten divisions of four each, all groups representing, so far as possible, the same four specialties. The work was strictly voluntary, each teacher bearing his own expenses. A team of four visited a locality once each month for six months, but no team visited the same locality a second time. The plan was satisfactory, except in one particular: Many outlying districts where the work was most needed were not reached. This work was kept up only during the year 1924.

In addition to this, however, a "state clinic" has been held annually for several years at the University of Colorado, where four days of intensive work are done covering all phases of medical study. There are usually 300 or more in attendance. A third line of work is a "traveling clinic," also of four days' duration and given at irregular intervals, in which the extension division of the University of Colorado, the Medical School, the Colorado Agricultural College, the State Tuberculosis Association and the Child Welfare Bureau all participate. For these traveling clinics the team is made up of a pediatrician, a psychiatrist and an obstetrician, chosen either from the faculty of the school of medicine or from among the leading practitioners of the state. The expense is borne jointly by the participating organizations.

The Ohio Plan

A number of district societies in Ohio have for several years offered an intensive program in some convenient center. A week in the spring or autumn is chosen, and prominent physicians of this country and from abroad are invited to lecture or conduct clinics. Demonstrations, round table discussions and other group meetings are arranged. The attendance at these postgraduate study conferences is usually large, so that the expense can be prorated and distributed among those taking advantage of each series of lectures. In one district society, for example, where postgraduate lectures are held for an entire week each fall, the cost has been uniformly set at $10 per member. In other communities, the cost ranges from $10 to $25 for special series of similar lectures. The second councilor district in Ohio, for example, has held such annual postgraduate conferences successfully for the past ten successive years at Dayton, the largest city in the district. The plan's chief limitation is that it covers only a week each year and therefore needs to be supplemented by other forms of extension work. This is being done in Ohio by arranging clinic days in the larger hospitals of the state, and by offering lectures on topics of interest at intervals throughout the year. In this work, the state society, the medical schools, the hospitals, the county societies and the state board of health are all co-operating.

Michigan has for about ten years sent organized teams to county societies to give an afternoon and evening program, consisting of clinics and informal discussions. Councilor districts have also conducted conferences, thirty such being conducted in fourteen districts during 1926. The conference continues through one day, from 9 A. M. until evening. Postgraduate clinics have also been held at some of the leading hospitals of the state. At such a clinic held at the University of Michigan Hospital at Ann Arbor last November, 300 physicians were registered. The state society is now promoting the organization of an all-year post-

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graduate school at the university, to which physicians "may come for a day, a week, a month or six months," and "pursue a definite line of study with broken attendance."

The Pennsylvania Plan

Extension work in Pennsylvania began in 1922, through the co-operative action of the medical society of the state, the various county societies and the Graduate School of Medicine of the University of Pennsylvania. A group of extension students is formed largely or wholly through the efforts of the state and county societies. The group effects its own organization, bears its own expenses, and may function indefinitely. Temporary subgroups are formed to provide material for clinical study.

A group representative is chosen to confer with the dean of the graduate school of the university regarding the subject-matter of courses. An assistant representative (usually an alert intern in the hospital where the courses are to be held) is chosen to work up cases. A stenographer-clerk is employed to report (multigraph) the work, thus forming a "book of the course" a copy of which is sent to the dean. The teachers are selected from the faculty of the medical school or from private practice. The teacher gives a day to the group, for which the group pays him his expenses and a small honorarium. The course reaches over a period of two years and comprises 150 hours of work. The dean checks up the work done, examines the students and awards a certificate.

This plan is definite and worthy, but has proved too expensive to operate widely with funds now available, and for this reason only a few counties have enjoyed its benefits thus far. As soon as the funds can be provided the scope of the work will be widened and the courses established on a highly organized and permanent basis.

A "Philadelphia non-group extension program" is also in operation. It comprises "150 periods per session, divided into six separate systematic courses." The work is conducted by highly trained men, but is planned on the order of seminars rather than lectures, and the personal and informal character is thus preserved. It is a co-operative work of the Philadelphia County Medical Society and the graduate medical school of the university. This Philadelphia program with but little modification is also being carried out in Northampton County.

The New York Plan

New York has done more than any other state in extension graduate medical education. Much of this work, especially the formulation of plans, has been carried on by strong county medical societies, ably assisted in some instances by medical schools and by the department of health. Having been first begun in or directed from the large cities, it is best understood by studying first the work in one or more of these cities.

The Brooklyn idea had its origin in 1922, the centenary year of the Medical Society of the County of Kings. That county society, in cooperation with the Long Island College Hospital, adopted a complicated program of extension courses at hospitals, intensive courses at the college and lectures in the auditorium of the county society building. The lectures were given in two courses of ten each, in the spring and fall. The time found most convenient was Friday, at 5 P. M., and at this hour an attendance of 400 or 500 physicians was usually secured.

The intensive courses represented from thirty to fifty hours of work for each course, from four to eight hours being done on one day of each week. A course was planned therefore to continue about six weeks and require a weekly session of a half or a full day. Attendance was limited to from four to eight students, and the work partook of the nature of a seminar.

The extension courses comprised from eight to twelve hours of work, one to three hours being spent at a hospital in the late afternoon of one day each week. Attendance was limited to ten students and the work was after the order of an informal lecture and clinic. Eighty per cent of all work done in Brooklyn has been of the extension course type.

This work, modified to suit local needs and preferences, has been taken up by other strong county societies. It has been carried on for some time by the Medical Society of the County of Erie, in co-operation with the Buffalo Academy of Medicine, the University of Buffalo School of Medicine, the Buffalo Department of Health and the various hospitals of Buffalo. The Medical Society of the County of Queens is utilizing the hospitals and other teaching facilities of New York City in a similar way.

Outside of these large medical centers, the medical society of the state of New York, through its committee on public health and medical education, has conducted one or more six-weeks' courses in nearly every county of the state. While "the work throughout the state has been largely modeled on the lessons and experiences of Kings County," all plans have been kept as flexible as efficient service would allow, and the state society's message to the county units and other groups has been: "Ask for anything you want, and we will arrange it for you." Provision has been made for single lectures or for courses of any length desired. The session, which is usually about two hours long, may be a lecture or lecture and clinic. Collateral reading is arranged and informal discussion invited.

In all of this work, the state society's aim has been, not the training of specialists, but the raising of local standards of general practice. A worthier aim is hardly conceivable, and the results obtained have been quite gratifying. While conditions in one state are never identical with those in another, the results in New York have convinced the committee in charge of it that such work may be carried on anywhere if hospitals and men willing and able to teach are available.

This discussion does not cover all that is being done in extension graduate medical education in the United States, but merely outlines plans followed by state medical societies and universities. There may be other plans in operation that have not been reported. If so, the Council on Medical Education and Hospitals of the American Medical Association would be glad to learn of them. Many district and county societies have doubtless found satisfactory solutions to some of their local problems in extension medical study. A detailed report of their experiences would be a valuable addition to the fund of information now available. The growth of interest in extension graduate medical education is manifest everywhere. To make the experience of one state or local society available to all is a service that cannot be measured. (*Amer. Med. Assn. Bull.*, June, 1927).

Patience is a virtue that very few possess;
It plays a most important part in nearly all success.
—*Selected.*

Report of the Committee on Radiological Frauds and Improper Practices.*

Some of the remarks made by counselors from various parts of the country seem to indicate that this specialty is threatened by dangers which are more or less peculiar to radiology. It seems that in different parts of the country fee-splitting, masquerading under various disguises, is becoming rather prevalent. If one were to attempt to find the source of these various tendencies and to classify them, one would give first place to the organizations, corporations, or companies selling stock to physicians and surgeons and encouraging these men to refer their cases to X-ray laboratories operated and owned by such corporations or companies, in the hope of receiving dividends upon their stock; and, of course, the more cases referred, the larger the dividends. The plan constitutes, stripped of its business terminology, nothing more nor less than an offer of a financial inducement to physicians to refer their cases to certain X-ray laboratories. Then we have another type of organization which is rather innocent on its face but which offers discounts to members of the organization. That is to say, if the member refers his cases to the laboratory in which he is financially interested, he may have charges for X-ray services made to himself, and then he may take a discount of 20 or 25 per cent or more and collect the full fee from the patient. As a matter of fact, there is no restriction whatever to the fees this man may charge; he may obtain his X-ray services on a small-fee basis, and then take his discount and charge his patient a large fee for the same service. This creates a rather dangerous situation. Some of these laboratories which operate as stock companies are operating without a roentgenologist in charge, the members themselves claiming they are quite competent to make their own interpretations, their own fluoroscopic observations, and to prescribe treatment. Some of them employ a physician as a figurehead, who is supposed to pass upon cases coming to the clinic, but he actually does not. The diagnosis is made by the technician and the physician's name is signed to the report.

Now, in order to bring this matter before the Society and try to get something concrete done

*Read at the Thirteenth Annual Meeting of the Radiological Society of North America, at New Orleans, Nov. 28 to Dec. 2, 1927.

we have prepared a set of resolutions, upon which we ask your approval. The question will arise, of course, in all of your minds, as to what good this may accomplish. It seems to your committee that, if it does nothing more, it will place us on record with a certain definition of commercial X-ray laboratories and unethical X-ray laboratories; it will define clearly what we regard as ethical practice and as unethical practice. With that backing, we can go before our own local medical societies to obtain their support in cleaning up this situation in various localities throughout the United States. Here are the resolutions which we have to present:

WHEREAS: Certain practices are becoming prevalent in various parts of the United States, which threaten the welfare of radiology, affecting the practice of this branch of medical science in a peculiar, deleterious, and harmful manner, and

WHEREAS: It is an important function of any medical organization to protect its specialty from the harmful effects of improper, unethical, or dishonest practices;

BE IT RESOLVED: By the Radiological Society of North America, in Executive Session at its Thirteenth Annual Meeting, that: (1) Radiological diagnosis is a consulting specialty of medicine, the chief function of which is to aid practitioners of other specialties and of general medicine in the diagnosis and treatment of disease; (2) that it is improper and unethical for any radiologist or any organization practising radiology to offer discounts or commissions, or other financial inducements, to attract patients either directly or through reference by other physicians; (3) that it is unethical for any radiologist or organization practising radiology to make charges to referring physicians for services rendered, but that all such charges must be made against the patient for whom such services are rendered; (4) that a commercial X-ray laboratory is defined as one which advertises to make radiographic or fluoroscopic examinations for physicians and surgeons for the avowed or apparent primary purpose of financial gain; (5) that it is improper and unethical for any radiologist to become affiliated with a commercial X-ray laboratory; (6) that a stock company or corporation with physicians and surgeons as stockholders, offering dividends as an inducement to refer cases to a laboratory owned and operated by such company or corporation, is unethical, and that such dividends be regarded in the same light as commissions or discounts. A group of physicians may properly own and operate an X-ray department or laboratory, providing the earnings therefrom are employed for the advancement of the science of radiology or other branches of medicine or the maintenance and improvement of service to patients, but not as an inducement to stockholders to refer cases in the hope of receiving greater dividends.

RESOLVED: (7) That an X-ray laboratory is to be considered unethical if therefrom emanate diagnostic reports based upon the radiologic observations of technicians who do not possess a medical degree or license to practise medicine.

The mere signature of a physician to such reports is to be regarded as an evasion of this rule unless such signatory has actually made the observations and drawn the conclusions upon which such reports are based.

BE IT FURTHER RESOLVED: (1) That no radiologist engaging in unethical practice according to the above definition shall be eligible to membership in this Society, and that no technician affiliated with an unethical or commercial laboratory shall be eligible to registration; (2) that a copy of these resolutions be forwarded to each state medical society with a request that they be published in the official Journal; (3) that a committee be appointed to obtain the official approval of these resolutions by the American College of Radiology, the American College of Surgeons, and the American College of Physicians.—(*Radiology*, May, 1928).

A Severe Indictment of the Navy's Health.

In the "Mail Bag" column this morning appears a letter of some interest from Dr. W. Armistead Gills, U. S. N., Retired, of Richmond, Va.

Dr. Gills has been heard from before, in the columns of this and other newspapers and on the platform. He has a grievance, and he does not hesitate to air it. It is not a personal grievance; it is a complaint of consequence to every citizen of the country if it is well founded. He alleges, with the backing of figures, that our naval policy pays too little attention to safeguarding the health of the personnel.

It stands to reason that the standard of health in the navy should be extraordinarily high. The country picks and chooses in accepting enlistments. It should get the best of raw material to begin with. Life in the navy should be conducive to health. The food is plain and wholesome. One would expect a man whose food and hours of rest are regulated, who lives in the open air and whose condition is under constant supervision, to score a high health rating. The figures cited in the Gills letter indicate that this is not the case.

A showing of 60,628 out of 113,756 men in the navy on the sick list (which means incapacitated for duty), at some time last year; of 2,239 invalided out of service, and of 1,271,416 days lost through illness, looks none too good. Dr. Gills gives the reason for these conditions, and demands their correction. But he is a crusader carrying on almost single-handed a campaign against an intrenched and organized beaureaucracy fortified behind entanglements of red tape, and like others who have inveighed against official abuses or neglect in the military services of the nation, he is making unappreciable, if any, progress.

It seems to "*The Record*" that the criticisms of Dr. Gills are worthy of some attention at the hands of the Secretary of the Navy. If his contentions are ill-founded their fallacy ought to be exposed. If what he says is true, measures should be taken, by the head of the Navy Department, to secure a marked improvement in the navy's health. The personnel of the navy is entitled to even more thoughtful care than its fighting machinery.—(*Philadelphia Record, April* 12, 1928.)

Roentgenology

Roentgen Ray Diagnosis.

LEOPOLD JACHES, M. D., Radiologist, Mt. Sinai Hospital, New York City.

(*Continued from page* 138).

Fractures and Dislocations

The first attempts to use roentgen rays for diagnosis were naturally made to study fractures. Surgeons soon found the rays of inestimable value not only in the determination of the presence and nature of a fracture but also in studying the results of methods of treatment. It is no exaggeration to assert that the treatment of fractures has been revolutionized by the advent of the roentgen rays. One no more hears the surgeon maintain that all that is wanted is a good functional result and that perfect anatomic alinement is not necessary. The skilled surgeon will not rest satisfied with "a good functional result," knowing full well that such a result is not often obtained without a good anatomic result. He has learned that good function is frequently interfered with by irregularities in the alinement of the fragments, especially when near a joint. So now that he has a reliable means of determining the success or failure of his efforts, he will not rest content until the reduction of the fragments has attained the best possible alinement. Exceptions, of course, there are to this as to every other rule. In fractures of the femur, or in fractures of both bones of the forearm or leg, perfect alinement is often unattainable except by operative intervention.

While the diagnosis of fractures by the roentgen ray is comparatively simple, it must not be forgotten that some fractures are difficult of demonstration, either because of their peculiar nature and location or because they involve the junction of bone and cartilage. The latter is absolutely radiotransparent. As examples may be cited the fractures of ribs in the axillary region or at the costochondral junction. In the axilla they are not demonstrable because, the fractures being generally of the greenstick variety, there is no displacement and the views that can be had of the ribs are such that the line of fracture is between the two fragments and is overlapped by both.

Likewise, small fissures which are of great clinical importance, such as often occur in the head of the radius, may be difficult to find, unless one has roentgenograms in several different positions. Or epiphysial separation may be so slight that none but the most experienced will detect them, and then only by careful comparison with the opposite side. Such comparison should be the routine in the study of fractures in the young, as the cartilaginous epiphysial lines might be mistaken for fractures, or the converse may happen.

The fact that cartilage is transparent to the rays is of great importance in the study of fractures in children and adolescents. An injury to cartilage alone, not involving bone, is

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out of reach of roentgen ray diagnosis. Similarly, the tears in the semilunar cartilages of the knee are most often missed. In such cases a negative finding does not absolutely rule out the suspected lesion.

Having mentioned these exceptions, one can affirm that by means of the roentgen ray it is possible to determine the presence of a fracture and to disclose its exact location, its nature, whether single or multiple, the position of the fragments, the method of attack in the efforts at reduction, and the result of those efforts. Callus in its early stages can be determined only by means of the roentgen ray.

Dislocations are also readily diagnosed by the roentgen ray, and differential diagnoses between fractures, dislocations or a combination of the two are made with absolute certainty. Stereoscopy will aid where the dislocation involves the shoulder joint or in the more rare luxations of the hip.

Here a note of warning should be sounded. Fluoroscopy should never be resorted to for the purpose of diagnosing fractures or dislocations. After the diagnosis has been made by means of the roentgenogram, reduction may be controlled with the aid of the screen. The result of this procedure should be checked up, however, by means of the roentgenogram. In this field co-operation between roentgenologist and surgeon is of the utmost importance.

Arthritis

From the diagnosis of fractures and dislocations it is merely a step to the study of the various forms of arthritis. The changes that occur at the articulations of the bones can be demonstrated with great precision, whether they are the calcium absorbing (atrophic) states in the early inflammatory stages or the bone-productive (hypertrophic) states of the chronic or of the healed stages of the disease. The atrophic lesion is shown by the disappearance of the articular cleft, by the approximation of the contiguous bones, and by a transparency of the bones which almost equals that of the soft tissues.

The roentgenologist soon learned that, with the exception of tuberculosis, the roentgenogram does not present any differentiating signs between the various infectious forms of arthritis. There being no characteristic bone changes, whether due to the streptococcus, gonococcus or other micro-organism, he can only state that the process is acute or chronic, that it is extensive or limited. There is an exception to this rule though: In the knee-joint the gonorrheal infection often attacks the cartilage on the posterior surface of the patella and the adjacent portion of the femur, causing a close approximation of these bones in the early stages and, unless the disease has been checked, ankylosis takes place in the later stages.

In the early acute stages there is seen an enlargement of the soft tissues and after three weeks marked absorption of the calcium salts showing the bones involved in good sharp outline, with the corticalis of eggshell thinness, but generally as transparent as the soft tissues.

The only form of arthritis that is almost characteristic in its appearance is tuberculosis in its early stages, when there is not only marked absorption of the calcium salts but also a peculiar inflammation of the soft tissues, causing a general haziness of the entire joint.

Another characteristic finding in tuberculosis is caries sicca, which is found most frequently in the shoulder joint in middle age, where it causes distinct erosions in or near the head of the humerus.

When the tuberculous process has undergone healing, the bones resume their normal consistency; but marked deformity often remains if the process has not been at least partially checked in its early stage.

Syphilitic arthritis may sometimes be differentiated from the other forms by the presence of periostitis in the shafts of the bones adjacent to the joint involved.

Charcot's joints and syringomyelia are generally characterized by the enormous deposits of bony detritus with marked destruction of the joint, while other neurologic diseases may show purely atrophic changes.

A differential diagnostic point in Charcot's joint is the absence of pain notwithstanding the severe anatomic lesion, and no atrophy of the bone.

Perthes' disease, which affects the head of the femur, flattening it, but not involving the entire joint, occurs sometimes in adolescents. It is generally self-limited. Its etiology is unknown. (*J. A. M. A.*, Feb. 18, 1928).

(To be continued.)

Proceedings of Societies

University of Virginia Medical Society.

The ninth meeting of this Society was held on May 7th, at the Chemical Building, University of Virginia, Dr. Bray presiding.

Dr. H. E. Jordan exhibited the head of a calf presenting internal hydrocephalus of the anterior and middle portions of the cerebrum. The extreme pressure atrophy of cerebral tissue was shown and the preliminary studies on the gross pathology were recounted. The calf lived for two months and presented no distinctive features but seemed to be like any other ordinary calf.

Dr. J. E. Kindred presented a study of an earth worm, Pheretima indica, which he found in this region. The particular interest in this creature is that the centers for leucocyte formation are sharply demarked and can be studied separately. Illustrations of the various types of leucocytes and of their positions of formation were given.

Dr. Homer Smith gave the principal discussion of the evening and outlined the main purposes that had engaged his attention in research for some years and which are inducing him to continue his studies in tropical Africa.

He first reviewed briefly the biologic tree back into ancient geologic periods and indicated by a diagram the apparent relationships between the older and the subsequent developing forms. In this connection he emphasized those developments which he considered to be of supreme importance in the development of the series ending with man. He has been particularly interested in the capacity of the body or of cells to maintain a biologic and osmotic balance in the presence of varying external conditions. In the simplest animals the osmotic pressure is the same within the body cavity as in the surrounding sea water. As the biologic scale is ascended the animal has become able to preserve its internal integrity in a surrounding of plain water and later forms have acquired the power to maintain their internal body balance of fluids even when living entirely out of water. He considered particularly the relation of the body fluids to evolution, especially those factors which affect the osmotic pressure of the body fluids and the phylogenetic significance of urea and other nitrogenous substances.

He has already studied types of mammalia and other orders, including reptilia and amphibia, with reference to the role of urea in maintaining the equilibrium of the body fluid under conditions of terrestrial and aquatic life and will go to Africa for the purpose of extending these studies by observations on lung fish.

The tenth meeting of the University of Virginia Medical Society took place on May 14th at the University Hospital, Dr. Bray presiding.

Dr. W. E. Bray reported the data relating to a patient discharged from the University of Virginia Hospital about a year ago with a doubtful diagnosis of typhoid fever. The patient returned recently on request and samples of his blood were tested against Bacterium tularense, giving a positive agglutination in dilutions of 1-80. This creates a plausible probability that the patient was suffering from tularemia. However, he did not apparently have either glandular enlargement or ulcerations and no history could be obtained of exposure. If it was tularemia it must be thought of probably as an intestinal form which hitherto has been found only in infections developing among laboratory workers.

A case of blastomycosis was presented by Dr. D. C. Smith and Dr. Raymond Kimbrough. A man working in lumber developed a sore on the back of the hand which persisted and spread. Later a big ulcerating area developed on the back of the left thigh. X-ray revealed a condition in the lungs so widely spread as to suggest the picture of disseminated pulmonary tuberculosis, although the lungs present hardly any lesions on auscultation and percussion except increased fremitus. The patient is being treated with intravenous injections of methyl violet on the basis of work of Dr. E. S. Sanderson a year ago, who found that 1:1,000,000 of methyl violet will usually inhibit growth of blastomyces.

Dr. W. H. Goodwin reported a case recently operated on that had come in on the Urological Service on account of retention of urine of unknown causation. Examination of the cord by X-ray with the use of lipiodol revealed a tumor between the eleventh dorsal and third lumbar. The very curious sensory and motor findings on the lower extremities and the condition of the sphincters were discussed. At operation a tumor as long as one's finger was found, the upper pole of which was

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intimately infiltrating with tissues of the spinal cord. The lower end of the tumor was removed. In the discussion Dr. Bray reported that sections were those characteristic of gliosarcoma. Dr. Neff added the account of the urological findings and of the condition of the sphincter and bladder wall musculature and of secondary hyperplasia of the verumontanum.

The main address of the evening was given by Dr. Hugh Trout, of Roanoke, Virginia, and was an interesting discussion of varicose ulcers. This discussion, accompanied by numerous illustrations and by moving pictures, included a discussion of the underlying and anatomical features of the venous circulation, particular emphasis being laid on the necessity of establishing and maintaining adequate lymphatic drainage. Surgical procedures were described, with diagram, for the attainment of these objectives, and cases were referred to which had been successfully treated.

Dr. Bray announced that there would be no more meetings of the Society until next autumn.

Adjournment.

The Augusta County Medical Association

Held its regular quarterly meeting in Staunton, May 2nd, with a good attendance. An excellent program was enjoyed by those attending, papers being read by Drs. H. G. Middlekauff, of Weyers Cave; Guy R. Fisher, of Staunton, and H. F. White, of Fishersville. Dr. J. F. Fulton is president and Dr. W. F. Hartman secretary.

The Tazewell County Medical Society,

Which now holds its meetings at the time of the Clinch Valley Medical Society meetings, has re-elected Dr. J. W. Shawver, Richlands, president, and Dr. Isaac Pierce, Tazewell, secretary. They report that Dr. T. H. Clark and Dr. W. E. Ritter are new members of that society and the following members have moved out of that territory: Drs. J. P. Haller, C. O. Foree, T. M. Trousdale, and Dr. John M. Bailey.

Dr. Isaac Peirce, Tazewell, was elected delegate to the State Society meeting in Danville, and Dr. W. R. Williams, Richlands, alternate.

Dickenson-Buchanan Medical Society Organized.

The doctors of Dickenson and Buchanan Counties, Virginia, have combined and organized the above named Medical Society and secured a charter from the State Society. Dr. J. C. Moore, Fremont, was elected president, and Dr. L. W. Newland, Splashdam, secretary-treasurer. Other members of this Society are: Drs. J. C. Sutherland and R. L. Phipps, Clintwood; Dr. T. C. Sutherland, Haysi; Dr. M. G. Rock, Trammel, and Dr. J. G. Storie, Grundy.

The next meeting of this Society will be held at Haysi, Va., July 19th.

The Medical Society of Virginia, Maryland, and District of Columbia

Held its regular semi-annual meeting at Upper Marlboro, Md., May the 16th. Dr. Hugh McGuire, Alexandria, Va., was the retiring president. Several interesting papers were presented and the election of officers was held. Dr. J. E. Sansbury, Forestville, Md., was elected president; Drs. J. A. Cahill and G. B. Trible, of Washington, D. C., vice-presidents; Dr. Wm. T. Davis, recording secretary; Dr. Joseph D. Rogers, corresponding secretary; and Dr. Robert S. Lamb, treasurer. The three last named officers (all re-elected) are of Washington, D. C. Nine doctors were elected to membership. It was decided to held the next meeting in Washington, D. C., in the Fall.

Following the business meeting, the Society was delightfully entertained at dinner by the president, Dr. J. E. Sansbury, who gave a most interesting account of the practice of medicine in the rural districts.

Woman's Auxiliary, Medical Society of Virginia

DOCTOR: PLEASE CALL ATTENTION OF YOUR WIFE TO THIS DEPARTMENT.

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary and Treasurer, Cottage Toll Road, R. F. D., Norfolk, Va.

Origin and Development of the Woman's Auxiliary to the American Medical Association.

By MRS. C. P. PENCE

If a thousand years in God's sight is but a

day, and a decade is but a twinkling in the history of a nation, then one must think of the life of the Woman's Auxiliary to the American Medical Association as a tiny thread, running through the annals of history, scarcely visible from the viewpoint of time.

But so golden is the texture and purpose that, in less than ten years, its luminous rays can be easily traced upon the pages of America's history. On May 4, 1917, thirty-one very earnest, efficient doctors' wives met and formed a permanent organization, naming it, "The Woman's Auxiliary to the Dallas County Medical Society". They set a seal upon the source of this benevolent movement that has grown and widened into a great social, educational and philanthropic work, coiling and weaving its radiant light into the hearts of thirty-one states of America and lo! its work has just begun! The efficiency and success of this organization is not easily rivaled. Such concrete, constructive results are seldom attained. The secret of this success is embodied in the fact that there is no turning aside nor looking backward. But each president or leader points to the same great goal with the same object in view, that of unselfish service and loyalty—loyalty to our husbands and their profession, to our homes and country—with a will to do and a heart to serve, be it in a social, educational or philanthropic way.

It is said the doctors' wives organized to foster friendship and good will among the families of the profession. To say this is true is but a feeble way of expressing the care and thoughtfulness—yet tenderness—that constantly manifests itself in a thousand different ways, which means far more to each of us than space permits expressing. But to scan the official records and note its progress, its widening, its going forward on its unerring, unchanging course until the thread of gold is woven into every department of service embodied in its scope, one is forced to realize it was organized for something greater and more far-reaching than mere entertainment. It is a constructive, resourceful, unique organization, unheralded by a predecessor, moving in an atmosphere of eloquence and sweetness, filled with the poetry of truth and a vision of its own dignity.

We are indebted to Mrs. John O. McReynolds for having conceived the idea of this great work. With the hearty co-operation of strong, earnest, cultured women, the organization was not only led armirably through its pioneer period, but succeeded in stamping its name indelibly upon the pages of history as a leading benefactor in the World War activities.

Even before the Dallas County Auxiliary's plans as an organization were perfected, they sought to interest the doctors' wives over the State in the great movement. The vision embodied in the spirit of service quickly awakened their interests and, by official requests, copies of the constitution and by-laws were sent out over the State and letters were written explaining the work, suggesting county organization. The result was most gratifying. In 1920, when the State Medical Association met at San Antonio, Texas, a permanent Woman's Auxiliary to the State Medical Association was organized.

The State Auxiliary's first effort was to organize the State by counties. This proved a stupendous task, due to the vast area of Texas. The doctors had found it necessary to divide the State into fifteen districts, so the Woman's State Auxiliary followed likewise. A council woman was placed at the head of each district, and through her the counties are organized and guided. Thirty-six are well organized at the present, co-operating with the State Committee on Prison and Prison Labor Reforms and with the State Child Hygiene Bureaus. Their chairman and council women occupy the chairmanship in social service departments of the State and work through the social service department of the City Federation of Women's Clubs. They co-operate with the Parent-Teacher Association, assist small towns in clean-up campaigns, plan definite health programs, observe State Public Health Week and Child Health Day. Annual physical examinations are stressed. The State Auxiliary also maintains a Student Scholarship Loan Fund, set aside for doctors' children exclusively. They respond in a broad way to American Red Cross and Community Chest work and contributions. The aim of the Woman's Auxiliary to the State of Texas is, to promote health and happiness by guiding its people to a higher plane of thought through education. To this end every member is giving her heart's best.

The result of such constructive work is far-reaching and satisfying in its results. The purity of its purpose soon found its way out of the State and into the heart of the Nation.

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In 1922, when the American Medical Association met in St. Louis, a resolution from the Texas Auxiliary was presented to the House of Delegates of the American Medical Association asking that a Woman's National Auxiliary be formed. The resolution was unanimously indorsed and nine States answered the roll call.

Experience from local to state, from state to national, has given a wide scope of knowledge, enabling the Auxiliary to build a constructive program which, when carried out, will be a building whose makers need not be ashamed.

It is the earnest endeavor of the Auxiliary to the American Medical Association to promote dependable health education, impress upon the public a proper conception of the real mission of organized medicine, especially in its crusade of preventive medicine. The body wishes, if possible, to secure moving pictures to illustrate the importance of the annual physical examination by the family physician for each member of every household, servants included.

All health programs and matters of importance are outlined and approved by the Liaison Committee which is appointed by the trustees of the American Medical Association.

With such fortification, the Auxiliaries are and will remain all that the name implies—an aid, a reserve force, followers not leaders, endeavoring to do all work assigned from time to time, to assist in lightening the burdens of humanity by helping to preserve the health of the people, and for this part in the great profession we are thankful. (*Jour. Woman's Aux. to A. M. A.*, Jan., 1928.)

The Truth About Medicine

In addition to the articles enumerated in our letter of March 30th, the following have been accepted:

The Cheney Chemical Co.
Ethylene-Cheney.
E. Fougera & Co.
Lipiodol-Lafay.
Lipiodol Radiologique Descendant.
Lipiodol Radiologique Ascendant.
Mead Johnson & Co.
Mead's Powdered Boilable Protein Milk.
Swan-Myers Co.
Ephedrine—Swan-Myers.
Ephedrine Inhalant—Swan-Myers.
Winthrop Chemical Co., Inc.
Phanodorn Tablets, 3 grains.

NEW AND NONOFFICIAL REMEDIES

Pollen Extracts—Hollister-Stier.—Liquids obtained by extracting the dried pollen of plants with a liquid consisting of 48 per cent of glycerin, 5 per cent of sodium chloride and 47 per cent distilled water. For a discussion of the actions, uses and dosage see Allergic Protein Preparations, New and Nonofficial Remedies, 1928, p. 23. Pollen extracts—Hollister-Stier are marketed in treatment sets of five vials and in treatment sets of thirty vials, representing graduated concentrations. The following preparations have been accepted: Alder Pollen Extract—Hollister-Stier; Aspen Pollen Extract—Hollister-Stier; Atriplex Pollen Extract—Hollister-Stier; Awnless Brome Grass Pollen Extract—Hollister-Stier; Blue Bunch Grass Pollen Extract—Hollister-Stier; Box Elder Pollen Extract—Hollister-Stier; Canada Blue Grass Pollen Extract—Hollister-Stier; Cheat Pollen Extract—Hollister-Stier; Common Sagebrush Pollen Extract—Hollister-Stier; Crested Koeleria Pollen Extract—Hollister-Stier; Dandelion Pollen Extract—Hollister-Stier; Eastern Ragweed Pollen Extract—Hollister-Stier; English Plantain Pollen Extract—Hollister-Stier; Giant Poverty Weed Pollen Extract—Hollister-Stier; Kentucky Blue Grass Pollen Extract—Hollister-Stier; Lamb's Quarters Pollen Extract—Hollister-Stier; Mugwort Pollen Extract—Hollister-Stier; Orchard Grass Pollen Extract—Hollister-Stier; Perennial Rye Grass Pollen Extract—Hollister-Stier; Quack Grass Pollen Extract—Hollister-Stier; Red Top Pollen Extract—Hollister-Stier; Redroot Pigweed Pollen Extract—Hollister-Stier; Russian Thistle Pollen Extract—Hollister-Stier; Sandberg's June Grass Pollen Extract—Hollister-Stier; Sheep Sorrel Pollen Extract—Hollister-Stier; Spring Birch Pollen Extract—Hollister-Stier; Timothy Pollen Extract—Hollister-Stier; Velvet Grass Pollen Extract—Hollister-Stier; Western Ragweed Pollen Extract—Hollister-Stier; Willow Pollen Extract—Hollister-Stier. Hollister-Stier Laboratories, Spokane, Wash. (Jour. A. M. A., April 7, 1928, p. 1116).

B. Acidophilus Milk—Adohr.—A milk culture of *B acidophilus* which contains not less than 250 millions of viable organisms (*B. acidophilus*) per c.c. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations see Lactic Acid-Producing Organisms and Preparations, New and Nonofficial Remedies, 1928, p. 228. Laboratory Division of the Adohr Creamery Co., Los Angeles, Calif.

Phanodorn Tablets, 3 grains.—Each tablet contains 3 grains of phanodorn (New and Nonofficial Remedies, 1928, p. 96). Winthrop Chemical Co., Inc., New York.

Solution Ephedrine Sulphate—P. D. & Co., 3 per cent.—A 3 per cent solution of ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178). Parke Davis & Co., Detroit. (Jour. A. M. A., April 21, 1928, p. 1291).

Ephedrine—Swan-Myers.—A brand of ephedrine—N. N. R. (New and Nonofficial Remedies, 1928, p. 174). It is also supplied in the form of Ephedrine Inhalant—Swan-Myers, a 1 per cent solution of ephedrine in light liquid petrolatum. (Jour. A. M. A., April 28, 1928, p. 1377).

PROPAGANDA FOR REFORM

"Colloidal Gold."—"Colloidal Gold" was developed by Professor Louis Kahlenberg and Dr. Edward H. Ochsner. It is claimed that the remedy has proved far superior to the roentgen ray and radium in the treatment of inoperable cases of cancer and also as a postoperative treatment. The Council on Phar-

macy and Chemistry examined the evidence and reported in 1925 that there was no reason for believing that "Colloidal Gold" offers anything more in the treatment of carcinoma than do the other colloidal preparations that have preceded it. From the circular matter that is sent out for Collodaurum by the Kahlenberg Laboratories, Inc. (successor to the Kahlenberg-Klaus Co.) it appears that this is essentially the same as the product formerly marketed as "Colloidal Gold." Further observations on the use of "Colloidal Gold" which have been published do not seem to permit a revision of the Council's estimate of the product. On the contrary, the new reports strengthen the Council's decision. (Jour. A. M. A., February 18, 1928, p. 564).

Separation of the Active Principles of the Posterior Lobe of the Pituitary Gland.—Using both methods of fractionation by precipitation and methods of dialysis, two portions of pituitary extract were obtained, one of which responded almost entirely to the oxytocic method of assay whereas another portion was found to respond to the pressor method and practically not at all to the oxytocic. Both of these principles have been obtained in a state of highly potent water-soluble powders. It is reported that the substantially pure pressor principle, termed B-hypophamine, has been obtained as a white powder eighty times as potent as the International Standard Powdered Pituitary, while the oxytocic principle, termed a-hypophamine has been obtained in a form 150 times as potent as the International Standard Powdered Pituitary. From this research the indications are that the pressor principle is responsible for the diuretic-antidiuretic action of the pituitary extracts. This work will undoubtedly lead to clinical applications of these principles, though at present the work is in an experimental state. (Jour. A. M. A., February 25, 1928, p. 618).

The "Dr. S. J. Eagan" Fraud.—On December 16, 1927, the Federal Trade Commission issued a "Cease and Desist" order in the matter of Leroy A. Kling, John E. Weddell, William R. Durgin and Cecil Widdefield, said to be co-partners doing business under such trade styles as "Dr. Eagan Manufactory," "Dr. S. J. Eagan," "Dr. Eagan Laboratory," "Pharmaceutical Products, Ltd.," and Kling-Gibson Co. The Commission declared that Kling, Weddell, Durgin and Widdefield under the various "Dr. Eagan" trade-styles were engaged in the business of selling cosmetics, creams, lotions and other toilet preparations on the mail-order plan. The Kling-Gibson Co., an advertising agency, was charged with composing and preparing advertisements for the various quackeries exploited under the names "Dr. S. J. Eagan," "Dr. Eagan Laboratory," etc. The Commission declared, further, that in the advertisements of these enterprises were many false, fraudulent and misleading statements made with the intent of deceiving the public. The case of the Eagan quackery is of more than ordinary interest to those who believe in truthful advertising. (Jour. A. M. A., February 25, 1928, p. 635).

Joyz Yerba Maté.—This seems to be a proprietary form of the rather well known Paraguay tea, which has for its essential ingredients caffeine and tannin. The product is exploited by the International Maté Co., Inc. In the advertisements it is declared that the preparation has "marvelous medicinal qualities," and that it is of use in rheumatism, kidney troubles and nervous debility. Paraguay tea is a popular drink in South America. The exploiters evidently wish to invest the product with medical qualities of a "patent medicine" type as a means of introducing it into this country. (Jour. A. M. A., February 25, 1928, p. 637).

Grapefruit as a "Patent Medicine."—In October, 1927, the *Journal of the Michigan State Medical Society* printed an utterly preposterous article entitled "The Therapeutic Value of Hill Grown Grapefruit." Inadvertently, an abstract of this appeared in *The Journal of the American Medical Association.* There is not the slightest scientific evidence that any kind of grapefruit has any curative virtues in diabetes. The article mentioned vaunts the alleged potency of a special brand of grapefruit; it refers to the case of a Dr. Roy, who has been exploiting himself in this connection for several years and now, apparently, it has led to a real-estate promotion and to the foundation of a sanatorium company by the Michigan physician. (Jour. A. M. A., March 3, 1928, p. 696).

The Tuberclecide Fraud.—Charles F. Aycock, "Consumption Cure" faker, has been debarred from the mails. He has for years sold a fraudulent "cure" for consumption called "Tuberclecide." This nostrum was exposed seventeen years ago; at that time Tuberclecide sold at $15 for a two-ounce bottle and was found by the A. M. A. Chemical Laboratory to be essentially a solution of creosote, or guaiacol, in olive oil. Eleven years ago, he was prosecuted in California, but the case was dismissed. Since then, Aycock has continued to defraud the tuberculous public, until finally the postal authorities have proceeded against him for fraudulent use of the United States mails. About January 1, 1928, a fraud order was issued against the Aycock Medical Institute, Aycock Medicine Company, Aycock Medical Company and Charles F. Aycock. There is reason to believe, however, that Aycock is evading the order by doing business under the name "Tuberclecide Institute," 402 Delta Building, Los Angeles, California. (Jour. A. M. A., March 3, 1928, p. 710).

Book Announcements

Hay Fever and Asthma. Their Cause, Prevention and Treatment. By RAY M. BALYEAT, M. D., F. A. C. P., Instructor in Medicine and Lecturer on Allergic Diseases, University of Oklahoma Medical School; Director of the Balyeat Hay-Fever and Asthma Clinic, Oklahoma City, etc. Second Edition, Revised and Enlarged. Philadelphia. F. A. Davis Company, Publishers. 1928. Octavo of 310 pages, illustrated with 76 engravings including 2 in colors. Cloth. Price, $3.50 net.

Folklore of the Teeth. By LEO KANNER, M. D., Yankton State Hospital, Yankton, South Dakota. Octavo of 316 pages. New York. The Macmillan Company. 1928. Cloth. Price, $4.00.

Educating for Longer Life. Pamphlet.

Twenty-four Thousand Men: What They Did in a Campaign for Better Health During 1927. Pamphlet.

What Do the Scales Tell You? Pamphlet.

Health Films and Minute Movies—for loan without charge except for transportation. Orders should be received for loan of same at least two weeks in advance of date of showing, addressed to Welfare Division, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y.

XUM

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Editorial

Comments on Gastric-Pancreatic Digestive Processes.

The Effect of Ligation of Pancreatic Ducts on Gastric Digestion.

One reads with interest accounts of work performed in research that would throw light upon digestion. This is a subject of large importance and Yesko,* Fellow in Surgery, Mayo Foundation, has brought forward the interesting relationship that may exist between gastric digestion and pancreatic secretion. In this account one notes the recital of changing views that have been held concerning the alkalinity of the duodenal contents as a regulator of the pyloric sphincter, citing Pavlow and Cannon as champions of this view, now challenged and questioned, and restating the more recent belief of Baldy and Eff that "pancreatic juice is the chief alkalinizer, not only of the intestines adjacent to the stomach, but within the stomach itself."

With a view of investigating this physiologic relationship, Yesko used six dogs of adult size. These were placed in individual kennels under conditions of similar nature. A standard test meal of 70 grams of raw horse meat and 200 c.c. of tap water, mixed, was given on the morning of the experiment after starvation of 18 to 24 hours. After an half hour gastric contents were withdrawn by the fractional method, taking away 10 to 20 c.c. every half hour until free hydrochloric acid appeared. After this, fractions were gotten every 15 minutes until the stomach was emptied. Each sample was analyzed for free hydrochloric acid, total acids, and neutral chlorides. Seven hundred tests were made; five tests on each dog, to establish a normal cure. In order to estimate the normal emptying time of the stomach barium sulphate, mixed with acacia and evaporated milk, was used and fluoroscopic observations were made of the emptying of this meal. Plates were made subsequently.

Each dog, having been tested as to normal secretion curve and normal emptying time of the stomach, was prepared for operation. After deep ether anesthesia, midline incision exposed pancreatic ducts. Using Mann's technique, major and minor ducts were ligated on the intestinal side and evulsed on the pancreatic side.

Recovery from operation and regaining of full strength of the animal were gotten on the eighth day.

On ninth day after operation, dogs were subjected to the same test meals and emptying time observations as used before operation. Omitting details, the experiments conducted on the dogs showed that, when all pancreatic secretion was absent;

(1) there was a slight rise in gastric acidity;
(2) the stomach empties faster by one hour;
(3) there was increased protein digestion;
(4) there was an increase in blood amylase;
(5) good health was maintained, but there was progressive emaciation (when both ducts were ligated and evulsed);
(6) post-mortem showed almost complete atrophy of the pancreas.

Contrariwise, the pancreas seems to be dependent, at least in part, upon gastric juice stimulation for its secretion. Bayliss and Starling, cited by MacLeod, starting from the well known experiment of the application of weak acid to the duodenal mucous membrane which excites secretion of pancreatic juice, severed all nerves to that portion of the duodenum, and, on applying acid, found that the secretion continued. They later scraped off the mucous membrane and "ground it in a motor with weak hydrochloric acid (0.6 per cent); and after bathing the solution so as to

*Proceedings of the Staff Meetings of the Mayo Clinics, March 14, 1928—page 79.

coagulate the protein, nearly neutralizing and filtering, they obtained a fluid which immediately caused a copious secretion of pancreatic juice when injected intravenously." This substance they called secretin.

Pancreatic secretion commences when (gastric) chyme enters the duodenum. The nature of the food influences the flow. The amount varies, apparently, with the amount of secretion in the stomach and passed into the duodenum.

Signs of diminished or absent pancreatic secretion may be noted here.

Partial or complete obstruction of the ducts from disease portends chronic pancreatic or gall tract disease. Long after digestive disturbances have held sway in life history of the patient, such obtrusive symptoms as the following denote the presence of grave pancreatic pathology. Diarrhea or loose bowel movements are the most notable symptoms. Bowel discharges of a voluminous formation, occurring early in the day, without pain, showing no blood or mucus, but bulky, putrid, fat laddened, are decidedly suggestive of pancreatic disease with absence of the secretion in the intestines. The association of free fat, and even undigested meat fibers in the feces, is quite pathognomonic of pancreatic disease.

T-Wave Negativity.

Willius* has drawn attention to electrocardiograms exhibiting T-Wave negativity in other than in Lead III, in 130 fatal cases on whom necropsy was performed. Clinical happenings of cardiac nature have been presented, along with pathologic data. The general controversy over the significance of T-Wave negativity in certain leads of the electrocardiogram makes a study of 130 such cases of decided interest to clinicians dealing with heart cases.

It is noteworthy that Willius concludes from his study of this group that T-Wave negativity is not associated with a specific pathologic lesion of the heart muscle. However, it is emphasized: (1) that there was marked cardiac hypertrophy (500 gm. or more), in 55 cases (42 per cent); (2) that there was coronary disease of "significant degree" (graded 2 to 4 plus) in 52 cases (40 per cent). In cases in which there was neither hypertrophy nor coronary disease (23 cases or 18 per cent), three were pernicious anemia; twelve were exophthalmic or adenomatous goiter cases; one was syphilitic aortitis with almost complete atresia of the coronary orifices, and two were cases of adherent pericarditis.

T-Wave negativity in Lead I occurred in 46 cases; T-Wave negativity in Leads I and II occurred in 27 cases; T-Wave negativity in Leads I, II and III occurred in 25 cases; and T-Wave negativity in Leads II and III occurred in 32 cases.

*F. A. Willius—A. J. of Med. Sciences, May, 1928—page 630.

Post Graduate Clinics.

Attention of readers of the VIRGINIA MEDICAL MONTHLY is directed to the article reprinted by courtesy of *American Medical Association Bulletin*, June, 1927, dealing with the subject of "Extension Work in Graduate Education." (See page 201). Earnest reading of this summary of plans as put over by various states in the past few years is enjoined. Members of the Medical Society of Virginia are now endeavoring, under the leadership of the President, Dr. J. W. Preston, assisted by a committee composed of Dr. J. C. Flippin, Dr. W. T. Sanger and Dr. E. G. Williams, to reach a decision as to whether or not this post-graduate clinical instruction shall be organized and put in operation by the Medical Society for the benefit of its members and, also, to devise, if it seems feasible, the best plans for the administration and application of the idea. A consideration of the experience of other states and methods adopted and used by other states, in carrying on the estimable system for extending clinical knowledge among live and busy workers in the field of practical medicine, is essential to a full understanding of the advantages and difficulties of extension education.

As a fundamental principle one may well conclude that the usefulness of every method of increasing knowledge, scientific and practical, is worthy of adoption. Knowledge is desirable, if not necessary, if one is to "keep abreast" of advancing medicine, to restudy all old "stuff" and to get next to the new "stuff" as it comes in. Every doctor, worthy of the name, desires to keep in touch with new methods of diagnosis, as well as rehearse and review old and accepted methods for recognizing disease, in whatever stage or type it may

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be met. The same may be said of the treatment of disease. These practical demonstrations in the "home section" of the active practitioner, in the wide field of pediatrics, medicine and obstetrics, alone, offer splendid opportunity for the revival of interest and knowledge in the noble art and science of medicine.

News Notes

Finals Medical College of Virginia.

The Medical College of Virginia held its ninetieth commencement exercises for the schools of medicine, dentistry, pharmacy and nursing in Richmond, from May 26th through May 29th, 1928. Exercises opened with Stunt Night and dramatics in the John Marshall High School auditorium on Saturday night. The baccalaureate sermon on the following day was preached by Rev. Charles Daniel, D. D., at the First Baptist Church.

On Monday, the 28th, was held the annual meeting of the Alumni Association, which was well attended. Dr. Roshier W. Miller, Richmond, was elected president; Dr. G. G. Dixon, Ayden, N. C., Dr. Harry Bear, Richmond, Mr. W. H. Huffman, Luray, and Miss Mary Ryland, Richmond, vice-presidents; Dr. Charles L. Outland, Richmond, secretary; and Dr. F. H. Beadles, Richmond, treasurer.

The Board of Visitors held its annual meeting at noon that same day. Following these two meetings, there was a buffet luncheon to the alumni in McGuire Hall. The baseball game at Byrd Park in the afternoon between the faculty-alumni and the students resulted in a tie game which was called that the participants might attend the alumni dinner at Commonwealth Club at 6:30 that evening. The order of events was changed this year so that the annual reception and dance were held on Monday evening at Commonwealth Club, and the final exercises at the Mosque Theatre were at 10:30 A. M. on Tuesday, the 29th. On this occasion, Dr. Russell L. Cecil, of New York, an alumnus of the college, delivered the principal address. The honorary degree of Doctor of Science was conferred upon Dr. Cecil at the exercises which followed.

At these exercises, degrees were conferred upon ninety-two in the department of medicine, nine in dentistry, fourteen in pharmacy, eleven in nursing, eight in dental assistants' course, and four were given certificates as clinical laboratory technicians. It was announced that twenty-one of the graduates in medicine would receive commissions as first lieutenants in the Officers' Reserve Corps of the United States Army.

Following are the hospital appointments which were announced at this time:

Memorial Hospital, Richmond, Va.—Drs. Walter C. Elliott, Winfall; Charles H. Henderson, Keysville; Millard D. Hill, Smithfield, N. C.; Wycliffe C. Jackson, Amelia; Fred Y. Ketner, China Grove, N. C.; James W. Love, Richmond; Robert T. McLaurin, Fayette, Miss.; Benjamin F. Phillips, Richmond; John H. Reed, Jr., Richmond; Rufus H. Reitzel, Siler City, N. C.; Earl L. Shamblen, Charlottesville; Robert W. Southerland, Mobile, Ala.; Lacey S. Wornal, Princeton, W. Va.; and Harry B. Yeatts, Danville.

Retreat for the Sick, Richmond, Va.—Drs. David F. Adcock, Oxford, N. C.; Wesley O. Brandon, Hamptonville, N. C.; and Euclid F. O'Neal, Ringgold.

Johnston-Willis Hospital, Richmond, Va.—Drs. Thomas H. Anderson, Richmond, and Carroll G. Bennett, Toshes.

St. Elizabeth's Hospital, Richmond, Va.—Dr. Willis K. Dix, Mears.

St. Luke's Hospital, Richmond, Va.—Drs. Clifford H. Beach, Horace R. Hicks and Wilbur R. Southward, Jr., all of Richmond.

Stuart Circle Hospital, Richmond, Va.—Drs. Garrett Dalton, Pulaski; A. F. Golderos, Guayanilla, P. R.; and Reuben F. Simms, West Point.

Johnston Memorial Hospital, Abingdon, Va.—Drs. James A. Soyars, Danville, and Garland H. Wolfe, Marion.

St. Agnes Hospital, Baltimore, Md.—Dr. Wilbur E. Hoffman, Keyser, W. Va.

Kings County Hospital, Brooklyn, N. Y.—Dr. William F. FitzHugh, Mindes Store.

Charleston General Hospital, Charleston, W. Va.—Dr. Allen S. Lloyd, Richmond.

Kanawha Valley Hospital, Charleston, W. Va.—Dr. Edward J. H. Haboush, Richmond.

Mountain State Hospital, Charleston, W. Va.—Dr. Elmer G. Rex, Reinersville, O.

Chesapeake & Ohio Ry. Hospital, Clifton Forge, Va.—Drs. Raymond L. Claterbaugh, Roanoke, and James W. Frazier, Greenville, Ky

U. S. Army Medical Corps, Denver, Col.—Dr. Clyde L. Brothers, Richmond.

Harper Hospital, Detroit, Mich.—Dr. Thomas L. Waring, Roanoke.

Watts Hospital, Durham, N. C.—Dr. Charles H. Spiggle, Richmond.

St. Francis Hospital, Hartford, Conn.—Dr. Edward A. Dignam, Hartford, Conn.

Hazelton Hospital, Hazelton, Pa. — Drs. Charles R. Bowman, Woodstock, and Lucius H. Bracey, Bracey.

Chesapeake & Ohio Ry. Hospital, Huntington, W. Va.—Drs. Alonzo Huffman, Milton, W. Va., and James L. Patterson, Huntington, W. Va.

V. I. C. Company Hospital, Inman, Va.—Dr. John A. Proffit, Richmond.

St. Francis Hospital, Jersey City, N. J.—Dr. Anthony R. Comunale, Iselin, N. J.

St. Anthony Hospital, Louisville, Ky.—Dr. Arthur D. Steely, Louisville, Ill.

Hospital of St. Raphael, New Haven, Conn.—Dr. Frank Mongillo, New Haven, Conn.

U. S. Marine Hospital, New Orleans, La.—Dr. Oswald F. Hedley, Richmond.

Elizabeth Buxton Hospital, Newport News, Va.—Dr. Asher I. Baker, Newport News.

Gouveneur Hospital, New York, N. Y.—Dr. A. H. Bracey, Jr., Bracey.

Metropolitan Hospital, New York, N. Y.—Dr. Dorothy Kirschbaum, Union City, N. J.

Pan American Hospital, New York, N. Y.—Dr. Antonio G. Gandia (Vila), Toa Baja, P. R.

Norfolk Protestant Hospital, Norfolk, Va.—Drs. Mahlon W. DeLoatch, Severn, N. C., and Claude V. Hollowell, Corapeake, N. C.

Sarah Leigh Hospital, Norfolk, Va.—Dr. Elliott D. Floyd, Bridgetown.

St. Vincent's Hospital, Norfolk, Va.—Drs. John R. St. George, Portsmouth; John R. Tucker, Richmond; and John J. Tyson, Ayden, N. C.

U. S. Marine Hospital, Norfolk, Va.—Dr. George Hess, Hampton.

Montgomery Hospital, Norristown, Pa.—Drs. Edwin C. Miller, Philadelphia, Pa., and Francis M. Teeple, Napoleon, Ohio.

Petersburg Hospital, Petersburg, Va.—Dr. Linwood Farley, Mannboro.

Philadelphia General Hospital, Philadelphia, Pa.—Dr. Percy C. Grigg, Haddonfield, N. J.

Germantown Hospital, Philadelphia, Pa.—Dr. James P. Williams, Richlands.

St. Margaret's Memorial Hospital, Pittsburgh, Pa.—Dr. Alice L. Randall, Charleston, W. Va.

Western Pennsylvania Hospital, Pittsburgh, Pa.—Dr. Thomas B. Hunter, Latrobe, Pa.

Lewis-Gale Hospital, Roanoke, Va.—Drs. Wilbur H. Hale, Narrows, and William N. Thompson, Stuart.

Roanoke Hospital, Roanoke, Va.—Drs. Alton C. Echols, Blackstone, and Emory E. Lovas, War, W. Va.

City Hospital, Springfield, Ohio—Drs. Max M. Fields, Castlewood, and Douglas F. Love, Sydnorsville.

Emergency Hospital, Washington, D. C.—Dr. Walter R. Gladding, Cape Charles.

Walter Reed Hospital, Washington, D. C.—Drs. Claude L. Neale, Saluda, and John R. Wood, Dumbarton.

Ohio Valley General Hospital, Wheeling, W. Va.—Dr. Harry L. Duncan, Moundsville, W. Va.

Columbia Hospital, Wilkinsburg, Pa.—Dr. William H. Earnest, Export, Pa.

Williamson Memorial Hospital, Williamson, W. Va.—Dr. George W. Easley, Chatham.

James Walker Memorial Hospital, Wilmington, N. C.—Dr. William S. Chadwick, Gloucester, N. C.

City Memorial Hospital, Winston-Salem, N. C.—Drs. Norbourne B. Jeter, Belona, and William P. Richardson, Wake Forest, N. C.

North Carolina Baptist Hospital, Winston-Salem, N. C.—Drs. Edward C. Joyner, Suffolk, and Earle R. Ware, Orange.

Eastern State Hospital, Williamsburg, Va.—Dr. Joseph J. Hornisher, Richmond.

Other members of the graduating class in medicine are:

Dr. Joseph F. Barrett, Waterbury, Conn.
Dr. William R. Bond, Richmond.
Dr. Harvey B. Haag, Richmond.
Dr. Stafford O. Handy, Stuart.
Dr. Archibald P. Hudgins, Richmond.
Dr. Alfred Koerner, Richmond.
Dr. Alexander L. Martin, Jr., Richmond.
Dr. Frances Isabelle Seymour, Long Island, N. Y.

Danville Meeting of the Medical Society of Virginia.

For the second time in its history, the Medical Society of Virginia has accepted the invitation of the Pittsylvania County doctors to meet in their metropolis—Danville. Now, after nearly a half century—forty-eight years

to be exact—our State Society will meet in that splendid city this Fall. With the new hotel recently erected there, Danville is now in position to take care of as many of our members as can arrange to attend. Let's make this a banner meeting!

Dr. J. W. Preston, Roanoke, is this year's president. His invited guests are Dr. Dean Lewis, Baltimore; Dr. E. Starr Judd, Rochester, Minn., and Dr. Seale Harris, Birmingham, Ala.

All members of the Pittsylvania County and Danville Medical Society have been assigned committee work in connection with the meeting and it is needless to say our members will have a pleasant and interesting time at this meeting. Dr. I. C. Harrison, Danville, is general chairman of the committee on arrangements.

Narcotic Tax Not Increased.

It is gratifying to note that the proposal to increase the tax on physicians and others under the Harrison Narcotic Law from one to three dollars a year was overwhelmingly rejected in the U. S. Senate on May the 15th.

Early Diagnosis Campaign Helpful.

Fifty-four counties and nine cities in Virginia have conducted an Early Diagnosis Campaign during the Spring months. This work has been carried on under the auspices of the Virginia Tuberculosis Association through its local committees and associations and has proven most successful.

The Early Diagnosis Campaign, which is a nation-wide movement, is designed to teach the public the danger signals of tuberculosis and the advice given is summed up in the slogan used on the posters and literature, "Let Your Doctor Decide". Doctors have reported that as a result of the propaganda it is noticeable the number of their patients who come in for a health examination.

The Virginia Tuberculosis Association does not conduct clinics now, and all of that work is done by the Bureau of Tuberculosis Out-Patient Service of the State Department of Health. The work of the Association is largely educational in its nature, and at present the emphasis is on summer nutrition camps for children, which are being conducted through the local committees. The local associations are very helpful in providing clothing and the necessary money for sanatorium treatment for indigent cases and will be glad to co-operate with any physician who needs such help for his patients.

The Virginia Tuberculosis Association reports that during the campaign an unusual number of requests have been received for the pamphlet "Diagnostic Standards" from physicians. This pamphlet is furnished free to any physician who wishes it.

Fewer School Children in France as Result of the War.

Recently published statistics of elementary education and illiteracy in France indicate a large numerical decline in the generation born during the years of the war. Only 3,500,000 children were reported in the elementary schools of today, in comparison with 5,500,000 in 1913.

Dr. James L. Hamner,

Mannboro, Va., is at the Willard Parker Hospital, New York City, where he is taking up special work on diseases of children and communicable diseases. His appointment was for three months, effective May 1st.

Dr. E. N. Lillard, of Culpeper County, recently of Miami, Fla., is looking after Dr. Hamner's practice during his absence.

Dr. Charles R. Robins

Has just been elected president of the Richmond, Va., Rotary Club, for the ensuing year.

Doctors As Delegates to Democratic Convention.

In addition to names given in our last issue, names of the following doctors have been noted among those named as delegates to the State Democratic convention in Roanoke in June: Drs. W. C. Webb, Disputanta; P. E. Tucker and G. L. Morriss, of Buckingham; Perkins Glover, Arvonia; R. A. Bennett, Bedford, and Dr. F. F. Davis, Sassafras.

The Virginia State Dental Association,

At its annual meeting held in Roanoke, the latter part of May, Dr. W. G. Delp, of Rural Retreat, presiding, elected Dr. J. E. John, of Roanoke, president-elect. Dr. R. C. Walden, of Richmond, became president on the last day of the meeting. Dr. A. M. Wash, of Richmond, was re-elected secretary-treasurer.

Married.

Dr. William Painter Gilmer, Clifton Forge, Va., and Miss Helen Newman, Corinth, Miss., February 8.

The American Gynecological Society,

At its annual meeting held recently, elected Dr. C. Jeff Miller, of New Orleans, La., presi-

dent, and re-elected Dr. Floyd E. Keene, of Philadelphia, secretary.

Dr. M. H. Watson,

Of the class of '24, University of Virginia, Department of Medicine, is taking up special work at the New York Post-Graduate Medical School and Hospital.

Dr. R. A. Vonderlehr,

Assistant Surgeon in the U. S. Public Health Service, has been transferred from Cobh to Dublin, Irish Free State.

The Johnston-Willis Interne Scientific Club

Was organized May the 30th, when a number of the former interns met at the Johnston-Willis Hospital, Richmond, Va. Dr. J. Morrison Hutcheson, Richmond, was elected president, and Dr. F. S. Johns, Richmond, secretary-treasurer. At the scientific meeting in the morning, papers were read by Dr. E. H. Richardson, of Baltimore, Dr. J. D. Willis, of Roanoke, and Dr. D. P. Scott, of Lynchburg. The afternoon was given over to golf and at night a banquet was held on the roof garden of the hospital.

Dr. William E. Fitch,

Recently of Buffalo Lithia Springs, Va., announces that he has now located at Bedford Springs and Baths, Bedford, Pennsylvania.

The Fifth International Medical Congress of Industrial Accidents and Occupational Diseases

Will be held September 2-8, 1928, in Budapest, Hungary. Very extensive plans for scientific, social and scenic attractions in connection with the Congress are announced. The Hungarian Consul General, of New York, will grant free vise of passport to all Visitors to the Congress and their families. A goodly number of participants have signed up for the Study Tour to the Congress, sailing on August 16th from New York on the S. S. "Munchen", visiting capitals and health resorts in Central Europe, and returning, after the Congress, via The Riviera and Spain, embarking from Gibraltar, on September 28th, for the return trip.

Physicians interested to join should communicate with Dr. Richard Kovacs, Secretary, 223 E. 68th Street, New York, from whom also any further information regarding the Congress can be obtained.

Dr. and Mrs. Lockburn Scott,

Norfolk, Va., expect to leave on the 19th of this month for a visit to two of their daughters in Winnipeg, Manitoba, Canada. Dr. and Mrs. Scott lived in Winnipeg before moving to Virginia.

Dr. Brumfield to be Director of Health Unit.

Dr. W. A. Brumfield, for several years health officer at the Virginia Polytechnic Institute, Blacksburg, Va., recently tendered his resignation in that capacity. On June 15th, he became director of the nine-county health unit composed of Prince Edward, Charlotte, Lunenburg, Nottoway, Amelia, Powhatan, Cumberland, Buckingham and Appomattox Counties. Mrs. Mary K. Cauthorne, graduate nurse, will be associated with him in this work.

Dr. and Mrs. M. H. Tredway

Returned to their home at Emporia, Va., early in June, after spending a month in New York.

Dr. and Mrs. George A. Stover,

South Boston, Va., recently attended the Southern Baptist Convention at Chattanooga, Tenn.

The Southside Virginia Medical Association

Will hold its regular quarterly meeting in Richmond, June 19th, as guests of its Richmond honorary members who are not affiliated with any group. The meeting will convene at the Commonwealth Club at 2 P. M. Following the afternoon session, the members will be guests of these doctors at dinner at the Club. "Artificial Feeding of Infants" is the subject for general discussion at this meeting. Dr. W. D. Prince, Stony Creek, is president, and Dr. R. L. Raiford, Franklin, secretary-treasurer.

Hospital Service in the United States.

The American Medical Association, through its Council on Medical Education and Hospitals, has issued its seventh annual presentation of hospital service in the United States. This report shows that there are 6,807 registered hospitals in the United States. Virginia, with a population of a little more than two and a half million, has a total of 118 registered hospitals. These hospitals have a capacity of 15,271 and an average census of patients of 12,003.

Our New Dress.

Our Publication Committee, always desirous of having our official organ worthy of the traditions of our State Society in appearance as well as reading material, has made an innovation with the present issue of THE VIRGINIA MEDICAL MONTHY in the form of the cover which has been adopted. The color that

they have chosen shows that they are men of keen judgment and fully aware that this is a season of bright colors.

Dr. F. O. Plunkett,

Lynchburg, Va., having recently completed a six months' internship at the Chicago Lying-In Hospital, has re-opened his offices in Medical Arts Building, Lynchburg, and is limiting his practice to obstetrics and gynecology.

Dr. Charles C. Tucker

Has recently returned to his home in Blackstone, Va., after spending several weeks in New York.

Mixt Pickle.

Dr. George E. Wiley, of Bristol, has recently completed a new book of negro dialect stories, entitled "Mixt Pickle." It is a collection of tales and sketches of the old-time negro, which are both humorous and true to life.

Dr. Wiley is quite gifted as a recorder of the dialect of the old Southern negro who now lives only in memory. As a boy he was familiar with the darkeys of other days and with their traditions and customs and songs. He treasured up and has transmitted to the public through the medium of the printed pages many interesting incidents of negro life and many highly amusing stories which he gathered from the negroes or are woven about them and which he tells in a most entertaining way.

The publishers speak very highly of "Mixt Pickle," saying in part: "This book is not a novel that is read and thrown aside. It will be kept in the library and read by the grown-ups and by the children and grandchildren. It is a record of some of the dialect of the old negroes whose folklore will, within a decade, be past with them, will become legendary history, and will only remain as recorded by those who have been capable of writing their peculiar dialect."

"Mixt Pickle" merits the compliment which the publishers have paid it. Many of the tales which it contains are based on fact and are therefore as much truth as fiction. The book, which is on sale at the Kemble-Cochran Book Store, Bristol, is well worth the $2 at which it is priced.

Dr. Guy Hinsdale,

Hot Springs, Va., as is his custom, left the first of June for Kennebunkport, Maine, where he will spend the summer months.

Dr. Edgar M. McPeak,

Recently at University, Va., has located in Washington, D. C., where he is associated with Drs. Groover, Christie and Merritt.

Captain J. B. Mears,

Of the Medical Corps, U. S. Navy., has been transferred from the U. S. Navy Hospital, Canacao, P. I., to Receiving Ship, Navy Yard, New York.

Dr. Ray A. Moore,

For some time at Phenix, Va., has located in Farmville, Va.

Dr. Roshier W. Miller,

Richmond, has been elected chairman of the Richmond City School Board, and Dr. Clifton M. Miller has been elected vice-chairman.

Commander Micajah Boland,

Medical Corps, U. S. Navy, has been detached from duty at Naval Operating Base, Hampton Roads, Virginia, and assigned to duty on the U. S. S. Florida.

Dr. Tom Williams,

Of Washington, D. C., will spend six weeks in Durham, N. C., where he will lecture on mental hygiene at Duke University, beginning June the 12th.

Lt. Commander E. V. Valz,

Medical Corps, U. S. Navy, has been transferred from the Naval Air Station, Pensacola, Florida, to the U. S. S. Arkansas.

The Association of Surgeons of the Southern Railway,

In annual session at Virginia Beach, Va., the latter part of May, selected New Orleans, La., as its next place of meeting and elected the following officers: President, Dr. Walter S. Nash, Knoxville, Tenn.; vice-presidents, Dr. George H. Searcy, Tuscaloosa, Ala.; Dr. Arthur P. McElroy, Union, S. C.; Dr. William H. Frampton, Charleston, S. C., and Dr. Samuel H. Hairston, Meridian, Miss.; recording secretary, Dr. William W. Harper, Selma, Ala.; executive secretary and treasurer, Miss Edith A. Foltz, Washington, D. C.

Virginia Cities Make Notable Health Record.

Following its annual custom, the *Journal of the American Medical Association* publishes in May the typhoid record made by all American cities of the hundred thousand over class. In Virginia there are two of those cities, Richmond and Norfolk, and it is extremely gratifying to announce that these two cieties are the only ones in the South that hold positions on the honor roll. Richmond did not have a

single typhoid death during 1927 and Norfolk had a typhoid death rate of 1.1 per hundred thousand.

The only other Southern city approaching these figures was Louisville, with a rate of 3.1, almost triple the death rate of Norfolk. The rates for the other large cities ran from 7.3 to 14 along the Atlantic coast States, 3.1 to 16 in the South-Central group, and from 4.3 to 8.7 for the Louisiana-Texas division.

Attend Mayo Clinics.

Dr. Vincent Archer, of the University of Virginia; Dr. Joseph T. McKinney, of Roanoke, and Dr. Hunter B. Spencer, of Lynchburg, have just returned from the Mayo Clinic, where they spent several weeks in the study of X-ray work.

Special Dermatology Number.

American Medicine, New York, has just issued a Special Dermatology number, which contains twenty-seven original contributions, many by men of international reputation. The articles are very comprehensive in scope and this number should be of almost text-book value to many practitioners. The publishers announce that single copies are fifty cents.

The American Ophthalmological Society,

At its annual meeting held recently in Washington, D. C., elected Dr. Walter R. Parker, of Detroit, Mich., president, and Dr. Emory Hill, Richmond, Va., secretary. The next meeting is to be held at Hot Springs, Va., in June, 1929.

Grand Rapids Has a Junior Vocational School.

This junior vocational school is for retarded children at least fourteen years of age who are not eligible to the regular city vocational schools because they have not completed the eighth grade. The completion of any specific grade is not required. Half of the school day is spent in training in the shop or work room. It is said to be proving successful with children who are restless and discontented in the regular grades.

The Economy of "Mothers' Pensions".

Three Georgia orphanages have found very advantageous the system of giving "pensions" to mothers with dependent children. It is not only good for the children, but it costs much less than maintaining them in the institutions, and enables the institutions to extend care over a larger number of children.

Doctors on Camping Trip.

Drs. Harry B. Stone and Hugh H. Trout, of Roanoke, Va., with their sons, expected to start about the tenth of June on a motor trip to the Pacific coast. They are carrying their camping paraphernalia with them and will go and return by different routes so as to visit many places of interest. They expect to be gone six to eight weeks.

Dr. Susan W. Field,

After a leave of absence, will resume her duties as resident physician to State Teachers' College, Farmville, Va., for the summer session. She has been spending some time at her former home in Lincoln, Nebr.

Mr. William L. Sohl,

Bridgeport, Conn., of the Laine Chemical Company, announces that he has regained his health and hopes to see the profession in this section at an early date.

Dr. Charles A. Young,

Roanoke, Va., has opened offices in Shenandoah Life Building, that city, and will limit his practice to ophthalmology.

Dr. Leroy L. Sawyer, Jr.,

Of the class of '22, Medical College of Virginia, recently of Roanoke, Va., has located in Washington, D. C., with offices in The Farragut. He is limiting his practise to diseases of the ear, nose and throat.

Oklahoma Now in the Birth-Registration Area.

The recent addition of Oklahoma to the birth-registration area, which now includes 42 States and the District of Columbia, brings the total population within the area to 92 per cent of the estimated population of the United States.

International Study of Infantile Paralysis.

A gift of $250,000 from Jeremiah Milbank for a three-year international study of infantile paralysis will be participated in by Chicago, Columbia, Harvard, and New York Universities, the University of Brussels, the Lister Institute, of London, the Metropolitan Life Insurance Co., and, it is hoped by the committee in charge, by other institutions here and abroad. The head of the department in charge of the work in each institution is included in the membership of the committee.

Summer Play Schools for New York Children.

The Child Study Association maintains 19 play schools for New York City children who spend their summer vacations in the city. The

children come to school at 9 A. M. and stay till 4:30 or 5 P. M., receiving a hot luncheon at noon. Courses in music, dramatics, handwork, and nature study are provided. The children are given medical examinations and health instruction, and are taken for bus rides and short trips and sent to the country if opportunity offers. A similar play center is maintained in Cleveland, where for the past two years the board of education has given the use of a school building, and last season supplied two teachers.

Harmon Grants for New Playgrounds.

Real estate operators anywhere in the United States have a chance to share this year in the $40,000 set aside by the Harmon Foundation for the establishment of permanent public playgrounds in new residential developments. It is the intention of the foundation to divide the total amount among not less than 20 of the residential developments which may qualify.

The Medical Society of the State of North Carolina,

At its annual meeting, which closed on May the 2nd, elected Dr. Thurman D. Kitchin, Wake Forest, president; Drs. W. L. Dunn, Asheville, David T. Tayloe, Washington, and William D. James, Hamlet, vice-presidents, and re-elected Dr. L. B. McBrayer, Southern Pines, secretary. Dr. James K. Hall, Richmond, Va., who presented a most excellent paper before the Society, was elected an honorary member of the Society.

The West Virginia State Medical Association

Held its annual meeting in Fairmont, the latter part of May, under the presidency of Dr. C. A. Ray, of Charleston. There was a registered attendance of 354 and the meeting was an excellent one in every respect. Dr. Harry M. Hall, of Wheeling, was elected president for the next annual meeting, which is to be held in Martinsburg, in the Spring of 1929. Other officers elected are: vice-presidents, Dr. J. A. Duff, Martinsburg, Dr. W. C. Swann, Huntington, and Dr. B. F. Bone, Moundsville; treasurer, Dr. T. M. Barker, Charleston; Editor of journal, Dr. James R. Bloss, Huntington, and chairman of the council, Dr. R. H. Dunn, South Charleston. Mr. Joe W. Savage, Charleston, is the secretary-business manager.

Factory Legislation by the Peking Government.

New labor legislation promulgated by the Peking Government toward the end of 1927 is worthy of note, although not actually enforced except in a very limited area. It applies to factories normally employing 15 or more persons, or where the work is dangerous or injurious to health. The minimum age for such employment was raised from 10 to 12 years for boys and from 12 to 14 years for girls. The maximum working day for women and young persons remains at 8 hours, but their work at night is now prohibited from 10 P. M. to 6 A. M., instead of 4 A. M. Former standards with regard to work certificates and factory inspection have also been raised.

A "White List" of Candy Manufacturers.

A "white list," or list of recommended candy manufacturers, is what the Consumers' League of New York suggests as one of the means of improving conditions for workers in candy factories and of insuring the wholesomeness of their products. It makes this suggestion after an investigation of 25 factories in New York, mainly by direct observation and actual work in the factories. This industry employs largely young inexperienced workers: at the time of the last census, three-fifths of them were under 21 years of age. It was found to be characterized in general by low wages, excessive overtime, and a very large amount of turnover among the employees.

Only 3 of the 25 factories required the legally prescribed food-handlers' card from the worker on entry, while in 10 factories the workers had never heard of medical examinations. Only 3 factories were very clean, and 12 were unnecessarily dirty. Facilities for handwashing were often inadequate and inconvenient.

The Boston Newsboys' Clubhouse.

A house on Beacon Hill has been purchased by the founder of the Boston Newsboys' Foundation, Mr. Harry E. Burroughs, and will be completely renovated to serve as the newsboys' headquarters and clubhouse. Mr. Burroughs has also given $100,000 to carry out the program for vocational and advanced trade courses, musical organizations, and social activities which has been planned.

The Graduate Nurses' Association of Virginia,

At its meeting in Richmond, last month, was well attended. The program included a number of excellent papers and addresses and social features added much to the pleasure of those attending. Miss Martha V. Baylor, of Roanoke, presided. Officers elected for the

new year are: President, Miss S. Virginia Thacker, of Roanoke; vice-presidents, Miss Blanche Webb, Norfolk, and Miss Virginia Hendrick, Richmond; secretary, Miss Lily Walker, Danville; and treasurer, Miss Jessie W. Faris, of the State Board of Health, Richmond.

Opportunities in Medical and Hospital Work in the U. S. Civil Service.

Such is the caption of a pamphlet recently issued by the U. S. Civil Service Commission, Washington, D. C. It gives a great deal of information which will prove quite interesting to any one anticipating entering the Service in any of the medical, dental or nursing fields. It also tells of the advantages of government service. Those of our readers interested in Civil Service work should write the U. S. Civil Service Commission, Washington, D. C., for a copy of this pamphlet.

Wanted—

To rent at once, well-equipped office and furnished home, for six months, in a city which promises excellent permanent location. Address "A. W.", care the VIRGINIA MEDICAL MONTHLY. (Adv.)

For Sale—

The following equipment of the late Dr. E. H. Heaton: Large Fisher cabinet—latest type machine: Morse wave generator; deep therapy lamp, and galvanic battery outfit. All are in perfect condition, having been used only one year. Will sell for half price. Address Mrs. E. H. Heaton, Leesburg, Va. (Adv.)

Wanted—

Eye, Ear, Nose and Throat specialist for association with established group, located in best part of the South. Only high-class, experienced man, good appearance and pleasant personality, who is willing to work hard and cooperate with group, need apply. Salary increased if makes good. Southern man preferred. Give age, training and experience in first letter. Wonderful opportunity for the right man. All communications will be held confidential. Address "No. 120," care VIRGINIA MEDICAL MONTHLY. (Adv.)

Wanted:

Single doctor to take charge of practice—mostly office work—from July 20th to September 20th. Attractive location in Virginia. If interested, apply to No. 123, care VIRGINIA MEDICAL MONTHLY, Richmond, Va. (Adv.)

Obituary

Dr. Edward E. Feild,

One of the oldest members and an ex-president of the Norfolk County Medical Society, died May 29th, at St. Vincent's Hospital, that city, after a long illness. Dr. Feild was born in Greenesville County, Va., seventy-three years ago and studied medicine at the University of Virginia, from which he graduated in 1879. He had been a member of the Medical Society of Virginia since 1884 and served a term on its executive council. In 1894, Dr. Feild was the recipient of the $100 prize offered by Dr. Hunter McGuire to members of the State Society for the best essay on "Appendicitis".

Dr. Frank Mason Dillard,

Alexandria, Va., died in the Emergency Hospital, Washington, D. C., May 18th, after an illness of several months. Dr. Dillard was born at Partlow, Va., thirty-eight years ago, and was graduated from the University College of Medicine, Richmond, in 1911. After a year's internship at St. Luke's Hospital, Richmond, he took post-graduate work at the Manhattan Eye, Ear, Nose and Throat Hospital. For the past eight years he has been specializing in this work in Alexandria, where he has been most successful. Dr. Dillard, former president of the Alexandria Medical Society, was a member of the Medical Society of Virginia and of the Alpha Kappa Kappa Medical Fraternity. He counted his friends by the score, was beloved by all with whom he came in contact, and will be greatly missed in the community.

He is survived by his wife and two children. Interment was made in Hollywood Cemetery, Richmond, on May 20th.

At a called meeting of the Alexandria Medical Society, held May 18, 1928, the following resolution was adopted:

RESOLVED: That the Alexandria Medical Society has suffered a great loss in the death of Dr. Frank M. Dillard, one of its active members, and formerly president of the Society: that during Dr. Dillard's residence in Alexandria, he has, through his professional ability, industry, charity, geniality, and personality, established a position in the profession and community which it will be impossible to fill: that the Society extend to Dr. Dillard's family its profound sympathy.

RESOLVED: That a copy of these resolutions be sent to Dr. Dillard's family, printed in the *Alexan-*

dria Gazette, and the VIRGINIA MEDICAL MONTHLY, and spread on the minutes of the Society.

O. A. RYDER,
S. B. MOORE,
HUGH MCGUIRE,
Committee.

Resolutions on Death of Dr. J. S. Blair.

Realizing the loss sustained by the death of the late Dr. J. S. Blair, of Churchville, Augusta County, on March 31, 1928, the members of the Church Hill Medical Society, Richmond, Va., desire to pay tribute to the memory of this distinguished gentleman and physician.

Dr. Blair took his pre-medical work at Washington and Lee University, graduating from that institution in 1875. He received his medical education in Kentucky, taking his degree in medicine in 1879, since which time he has engaged in the practice of his profession in Augusta County.

He was an active member of his county medical society, serving a number of years as its president and also served as president of the school board of Augusta County.

He was a member of the State Medical Society, and also a non-resident member of the Church Hill Medical Society of Richmond, Va.

Dr. Blair was a devout Presbyterian and had for the past thirty years served as an Elder in his church; he was a well informed student of Theology and possessed an abiding faith in his Maker.

During his active life it was his pleasure to minister to the poor and needy as well as those in more fortunate circumstances.

Sincere in his convictions, optimistic in his outlook on life, unbending in his discharge of duty and possessing the noblest attribute of character, he was universally respected, trusted and esteemed.

Therefore be it, Resolved: That the heartfelt sympathy of this Society be tendered the members of his family, that a page of our minutes be set apart as a permanent record of this memorial and it be published in both the local and Augusta papers.

(Signed),
A. S. LILLY,
M. L. BOYLE,
S. M. COTTRELL.

Resolutions on Death of Mrs. Driver.

The following resolutions were adopted by the Woman's Auxiliary of the Norfolk County Medical Society of Norfolk, Virginia, May 28th, on the death of Mrs. Driver, the second president of that Auxiliary:

Whereas, in the death of Mrs. Wilson E. Driver, we have sustained a great loss, therefore be it resolved by our Auxiliary:

That we extend to her bereaved family our sincere and heartfelt sympathy;

That her strong and attractive personality, her devotion to duty, her beautiful life of service leaves to her family a priceless heritage, and to the Auxiliary, this influence of a worthy life and a lofty example.

And finally that a copy of these resolutions be sent to her family, to the official magazine of our organization, and be recorded in the minutes of our Auxiliary.

MRS. STARKE A. SUTTON,
Chairman.

Dr. Martin P. Dillard.

Henry, Va., for many years a practicing physician of Franklin County, Va., died in Rocky Mount, Va., February the 26th, at the age of seventy-five years. Death was due to heart disease.

Dr. Hideyo Noguchi,

Noted bacteriologist, since 1903 an associate at the Rockefeller Institute, New York, died May 21st, at Accra, West Africa, of yellow fever, while completing researches on this disease, for which purpose he went abroad last November. Dr. Noguchi was born in Japan nearly fifty-two years ago. He first graduated in medicine from the Tokyo Imperial University, in 1897, and subsequently studied at the University of Pennsylvania and the Serum Institute of Copenhagen. He had been the recipient of honors from many countries. A statement issued by the Rockefeller Institute says that "In the death of Dr. Noguchi, bacteriological science has lost one of the most brilliant and original investigators and the Rockefeller Institute one of its most eminent scientific workers and one of its most charming and deeply respected members."

Dr. William Leroy Dunn,

Asheville, N. C., prominent tuberculosis specialist, died at Mount Alto Hospital, Washington, May 24th, after a lingering illness. He was a prominent member of the Medical Society of the State of North Carolina and for many years one of the directors of the National Tuberculosis Association. He graduated from the University of Michigan, Department of Medicine, in 1891.

Dr. Carl Putnam Parker,

Seaboard, N. C., a graduate of the Medical College of Virginia, Richmond, in 1915, died April the 6th, of angina pectoris. He was thirty-six years of age and was a former president of the Northampton County (N. C.) Medical Society.

Dr. Benjamin R. Graham,

Wilmington, N. C., died April the 18th of septicemia. He was fifty-nine years of age and had graduated in medicine from the University of Virginia, in 1895.

Dr. Neill MacRae,

Littleton, N. C., died April the 14th, at the age of fifty years. Death was due to pneumonia. Dr. McRae studied medicine at the former University College of Medicine, Richmond, from which he graduated in 1900.